

FE LINE DIAGNOSTICS OF MULTIPLY SHOCKED STELLAR ATMOSPHERES:

THE MIRA S. CARINAE

NASA Grant NAG5-2123

Semi-Annual Report

For the Period 1 November 1992 through 30 April 1993

Annual Reports

**For the Period 1 November 1992 through 30 October 1993, 1 November 1993 through 30 October 1994,
and 1 November 1994 through 30 October 1995**

Final Report

For the Period 1 November 1995 through 30 June 1996

Principal Investigator

Dr. Jay Bookbinder

June 1997

Prepared for:

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

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**The Smithsonian Astrophysical Observatory
is a member of the
Harvard-Smithsonian Center for Astrophysics**

The NASA Technical Officer for this grant is Dr. Donald K. West, Code 684.1, Laboratory for Astronomy and Solar Physics, Space Science Directorate, Goddard Space Flight Center, Greenbelt, Maryland 20771.

1 Observational Summary

Extensive LWP-HI spectra were obtained of the Mira S Car at a rapid time cadence as compared with the shock cycle time of S Car. These spectra were obtained in an attempt to understand the velocity structures in the shocked wind using the fluoresced iron lines.

2 Analysis Summary

Data analysis of the IUE observations was Carried out by Drs. Jay Bookbinder and Ed Brugel which included the primary calibration of all of the IUE spectra obtained of S Car. In addition, several students have participated in the analysis, performing line identifications, flux calculations, background subtractions, and line profile analysis as a function of S Car's pulsational phase. All of these analyses were collated and incorporated into a database at CfA on Dr. Bookbinder's computer. The database incorporated all line identifications as a function of pulsation phase for all IUE LWP-HI observations to date of S Car. At least 45 separate iron line features are identified in the S Car spectrum at one or more phases of the shock cycle, including those due to FeII (UV 161) which is pumped by three different iron lines; Fe I(UV 44) which is pumped by the Mg II k line. Other strong multiplets that have been identified include UV(1), UV(2), UV(5), UV(32), UV(60), UV(63), UV(161), UV(207), and UV(399). Over 300 weaker lines have also been tentatively identified with Fe line transitions.

3 Science Summary

Our analysis results show that the FeII lines can provide as much or more cooling to the shocked atmosphere at some phases as the resonance Mg II lines.

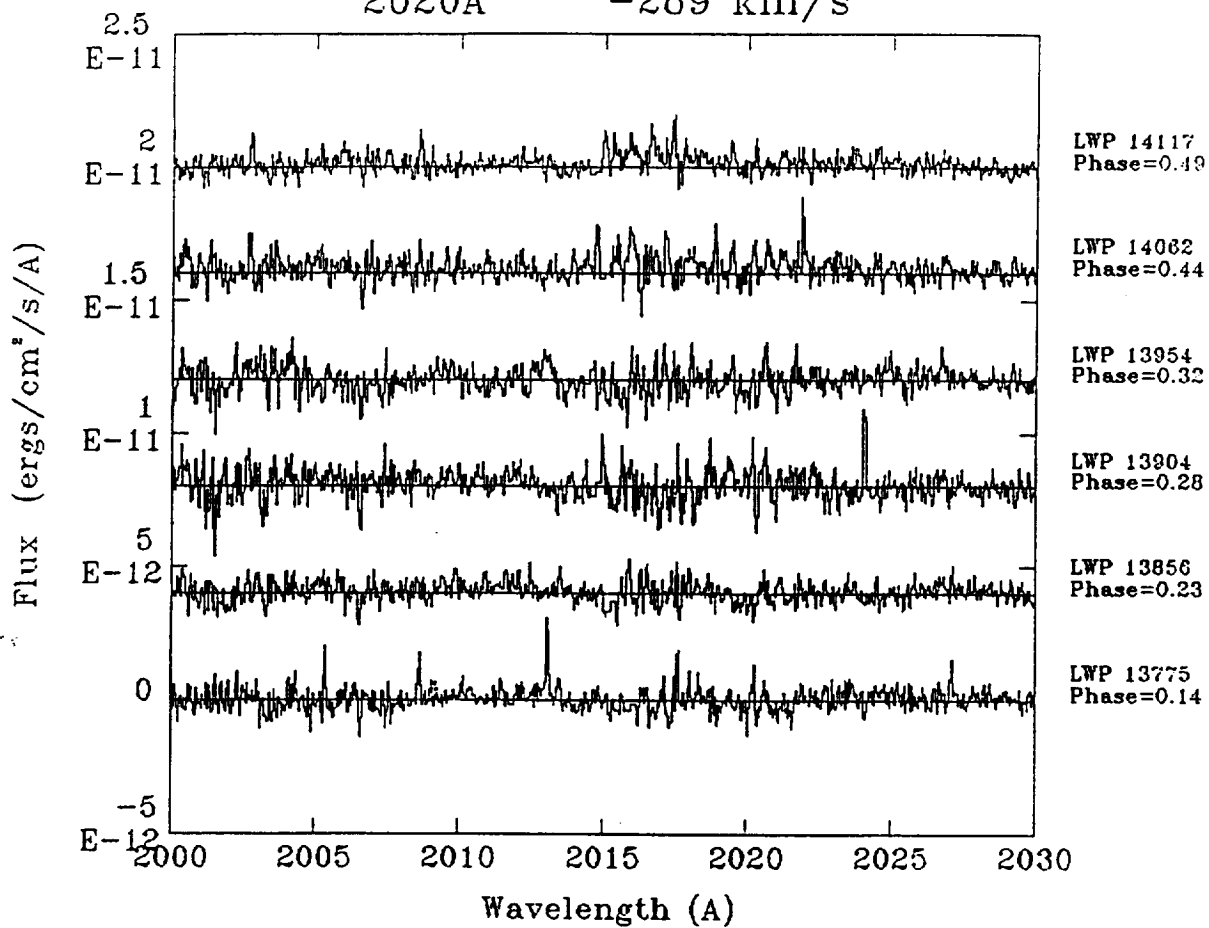
Both the fluorescent and the collisionally excited lines provide a very direct probe of the velocity fields throughout a large portion of S Car's atmosphere. Analyses were performed that provided an initial velocity map of S Car's atmosphere.

4 Current Status

The above general descriptions of the research carried out under this program are all that is currently available except for the material presented in the Appendices.

The computer disk that all the analyses were performed on experienced a devastating malfunction that destroyed all data on the disk. This included not only the calibrated UV data, but also all the IDL analysis routines we developed to analyze the spectra, all the databases, and all interim written results on the analysis. Efforts were made to recover the disk using commercial disk recovery firms, but their efforts were unsuccessful. Backups that were being made nightly by the SAO HEAD Systems Group failed without giving warning errors, due to a subtle bug in the Solaris operating system. No backups are therefore available. Unfortunately, all that remains are the original, uncalibrated raw data.

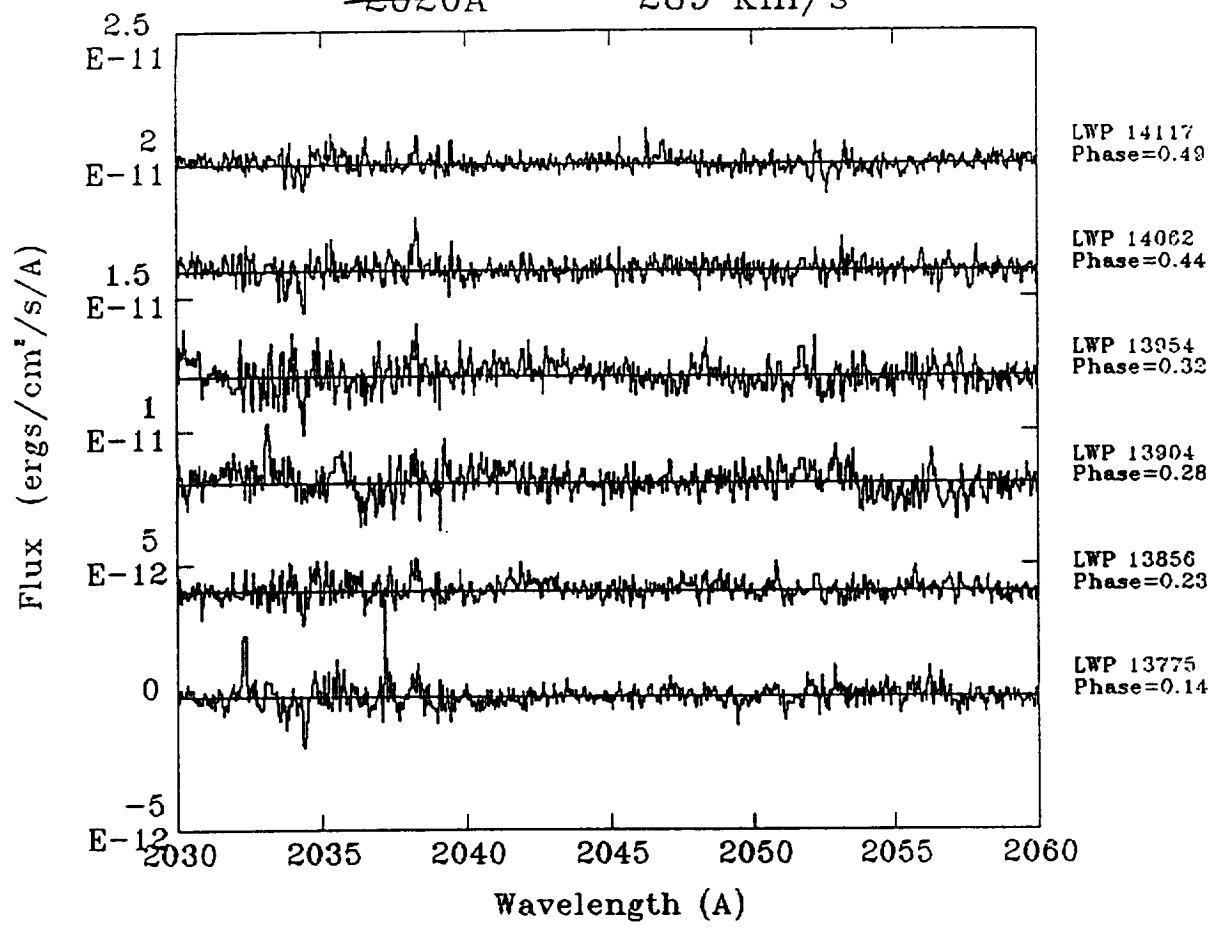
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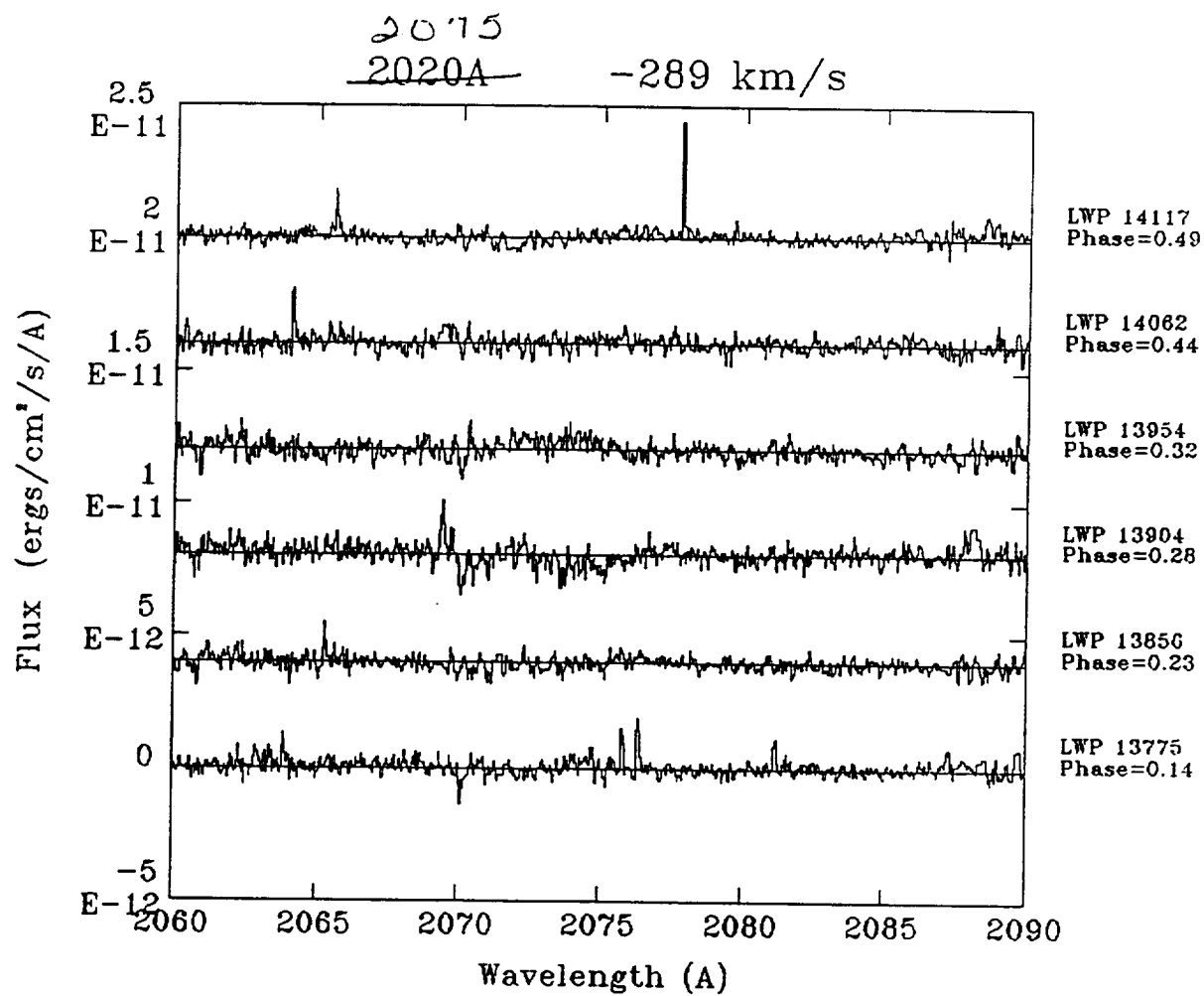
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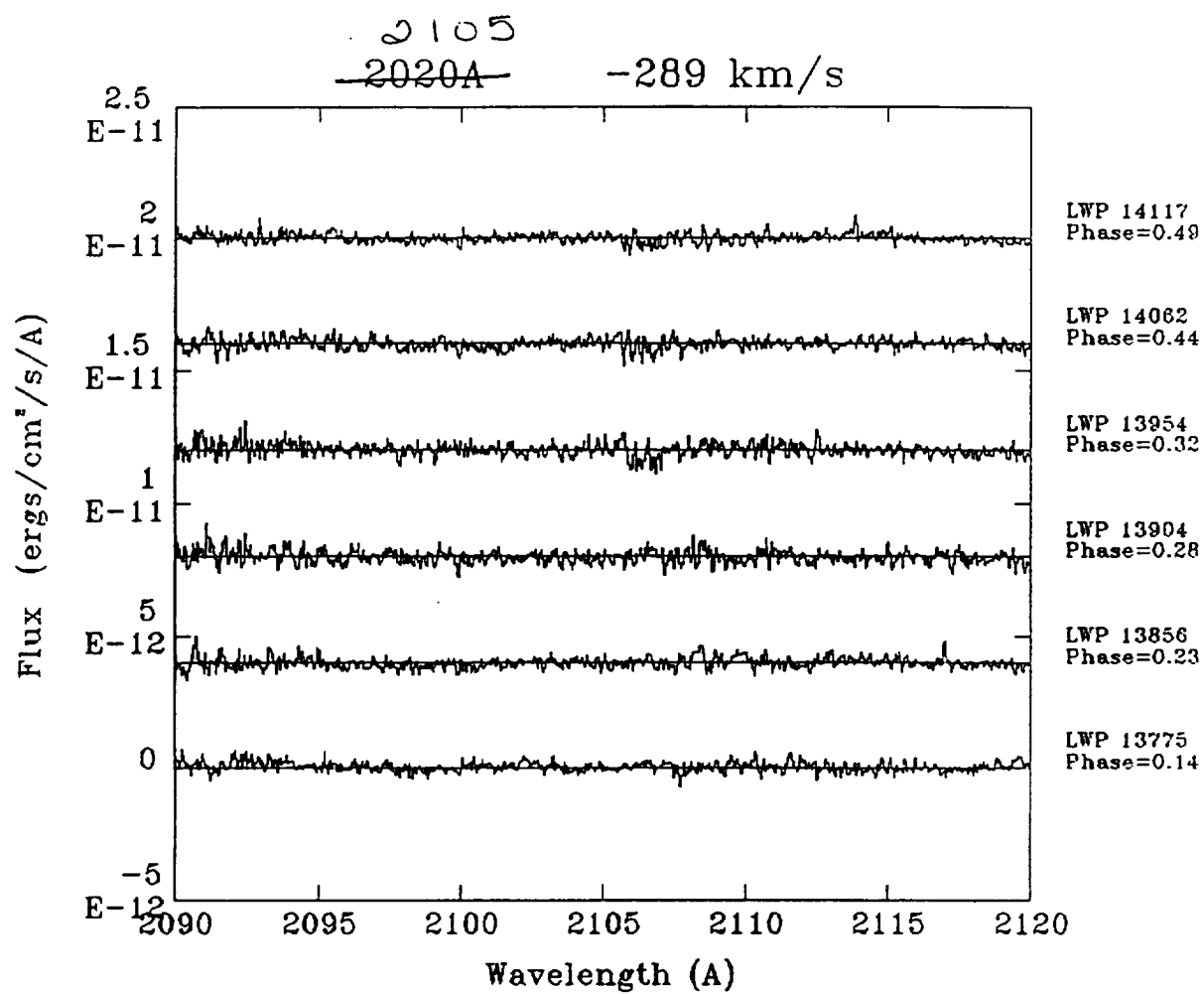
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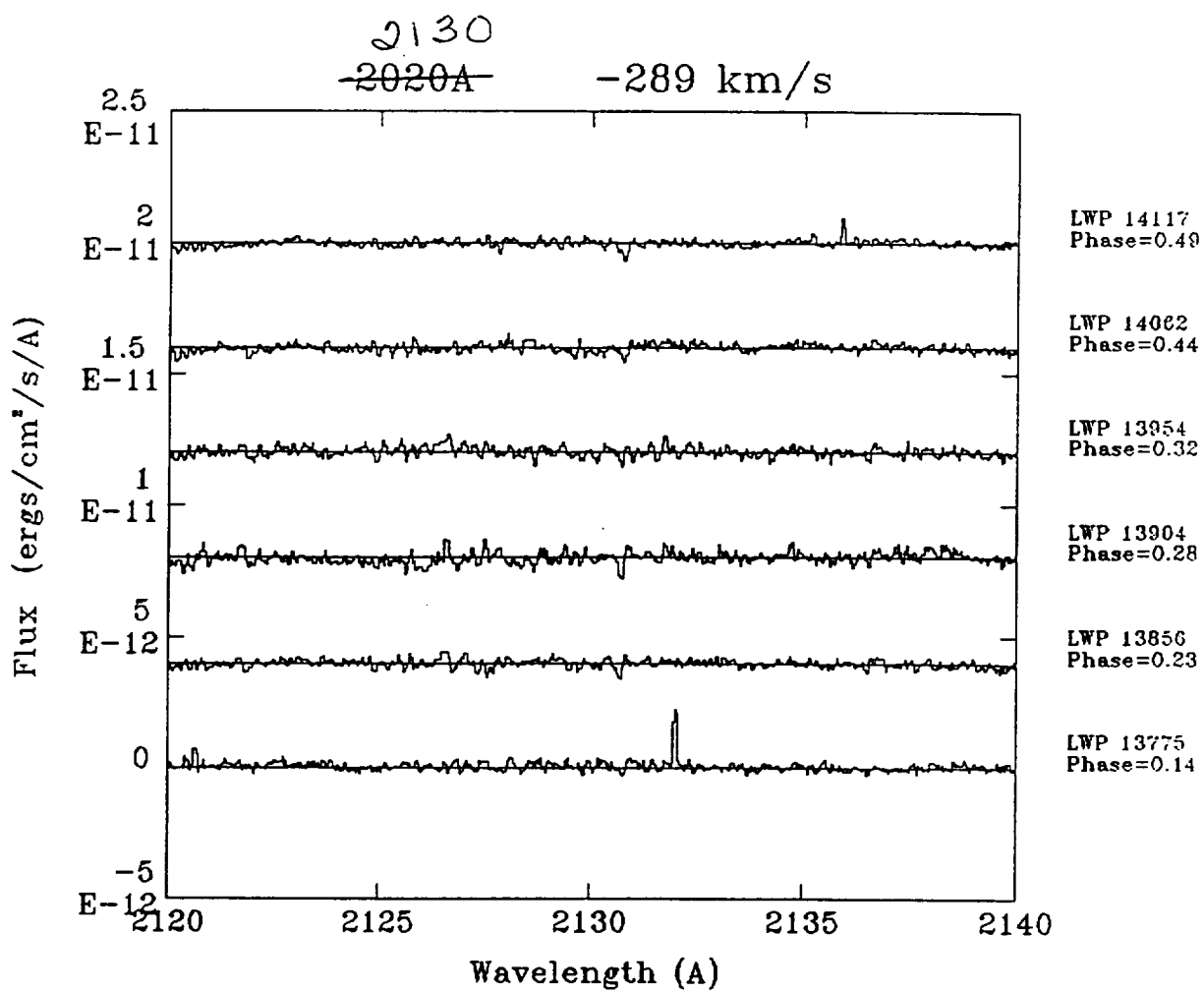
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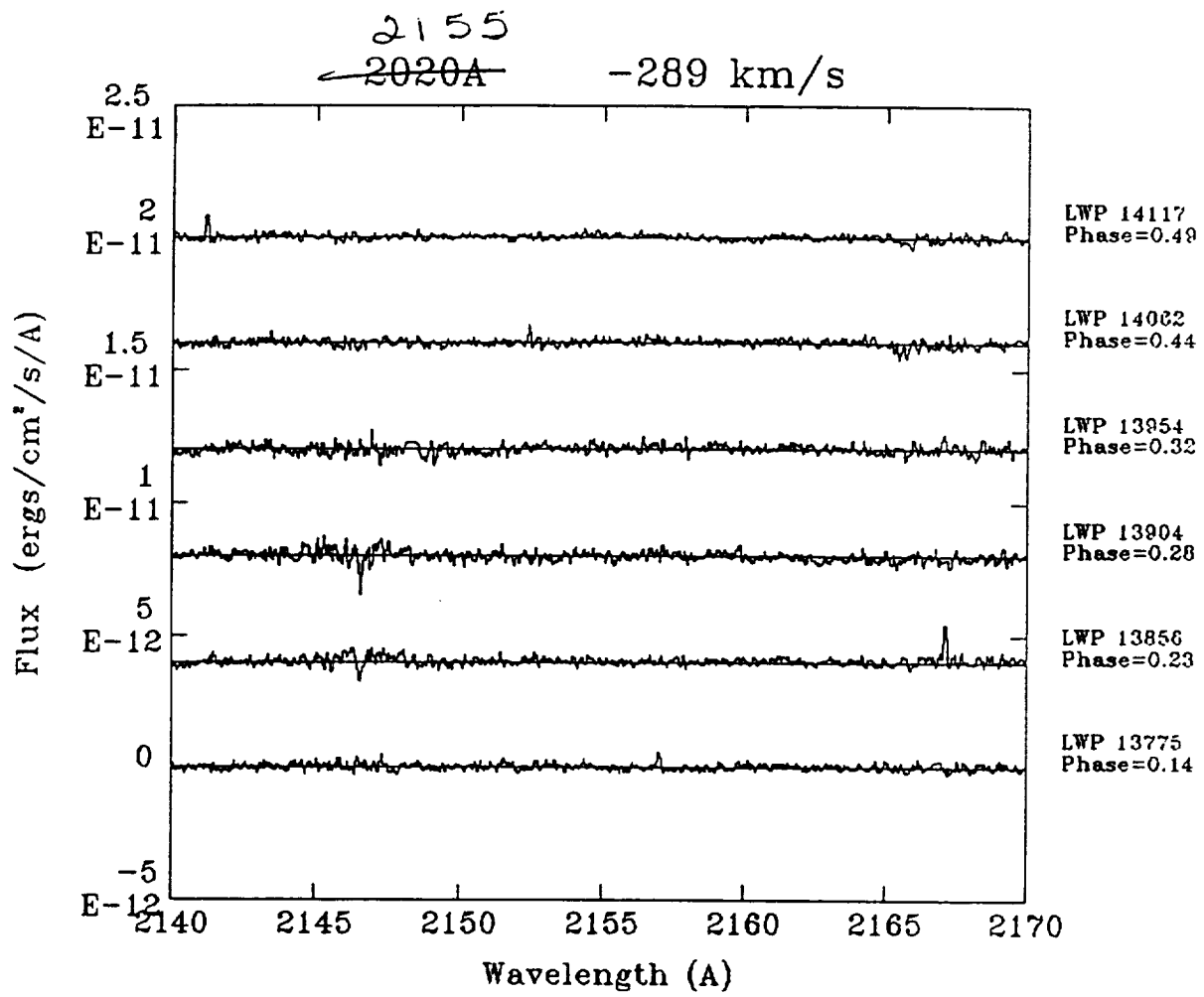


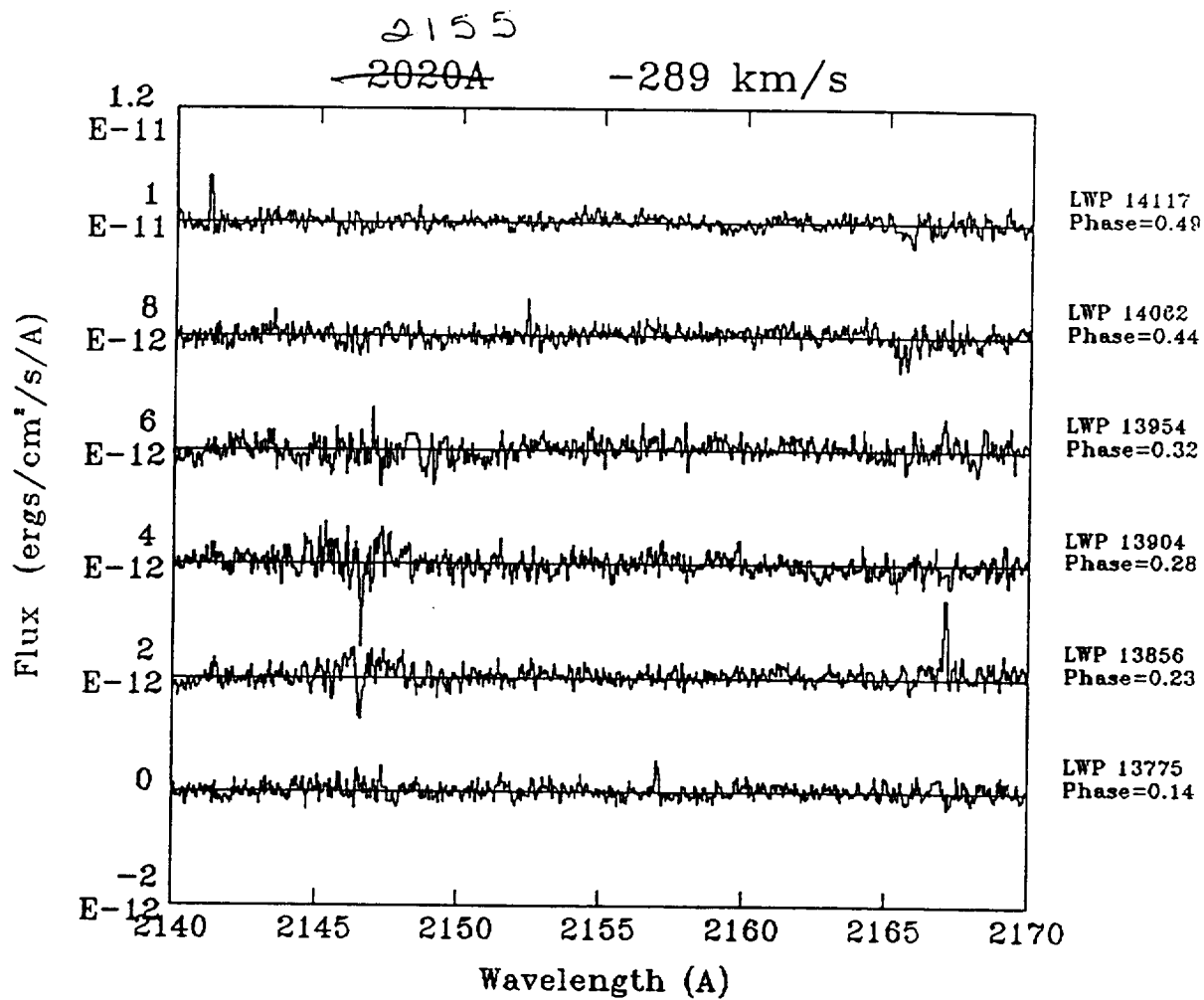
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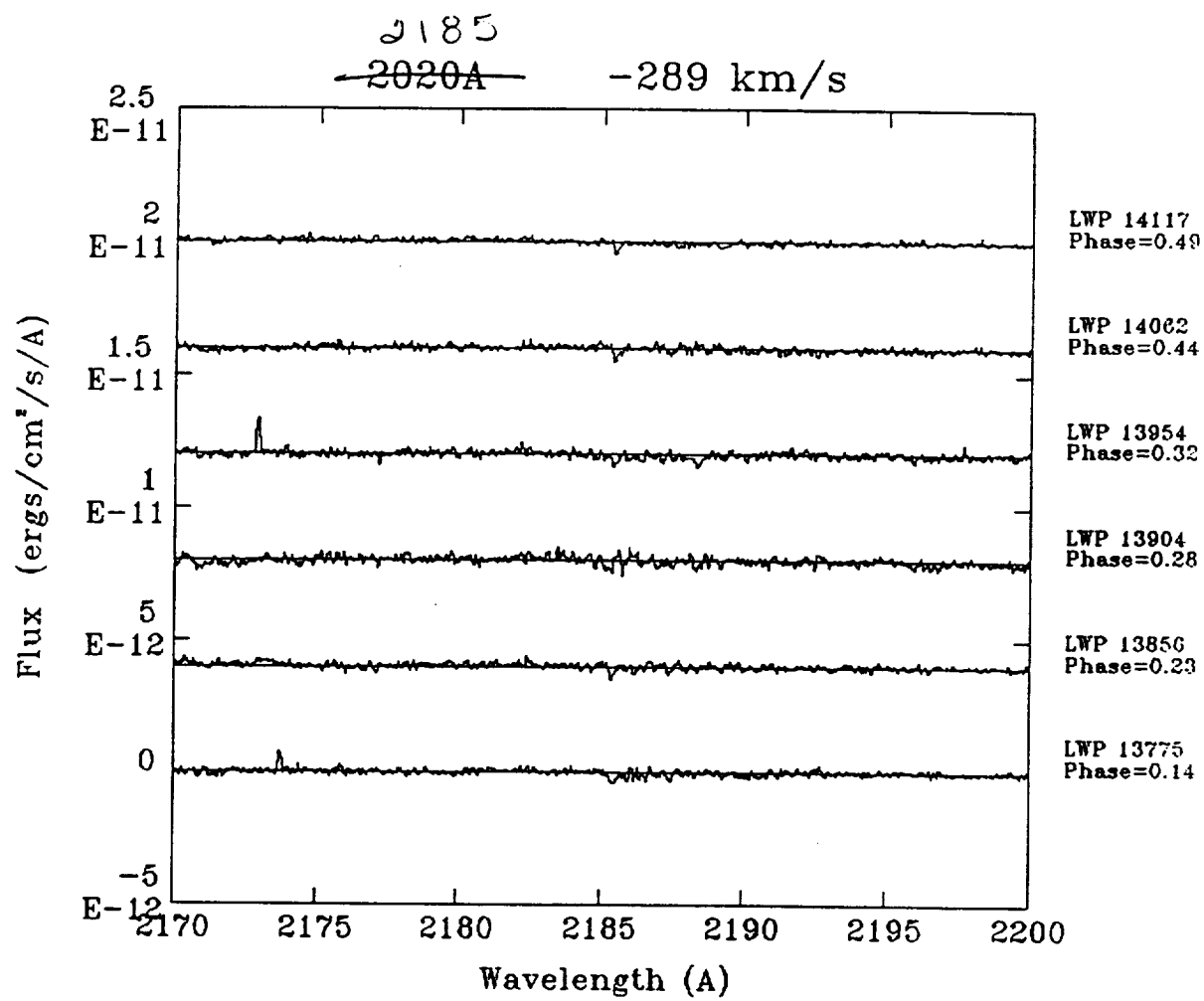
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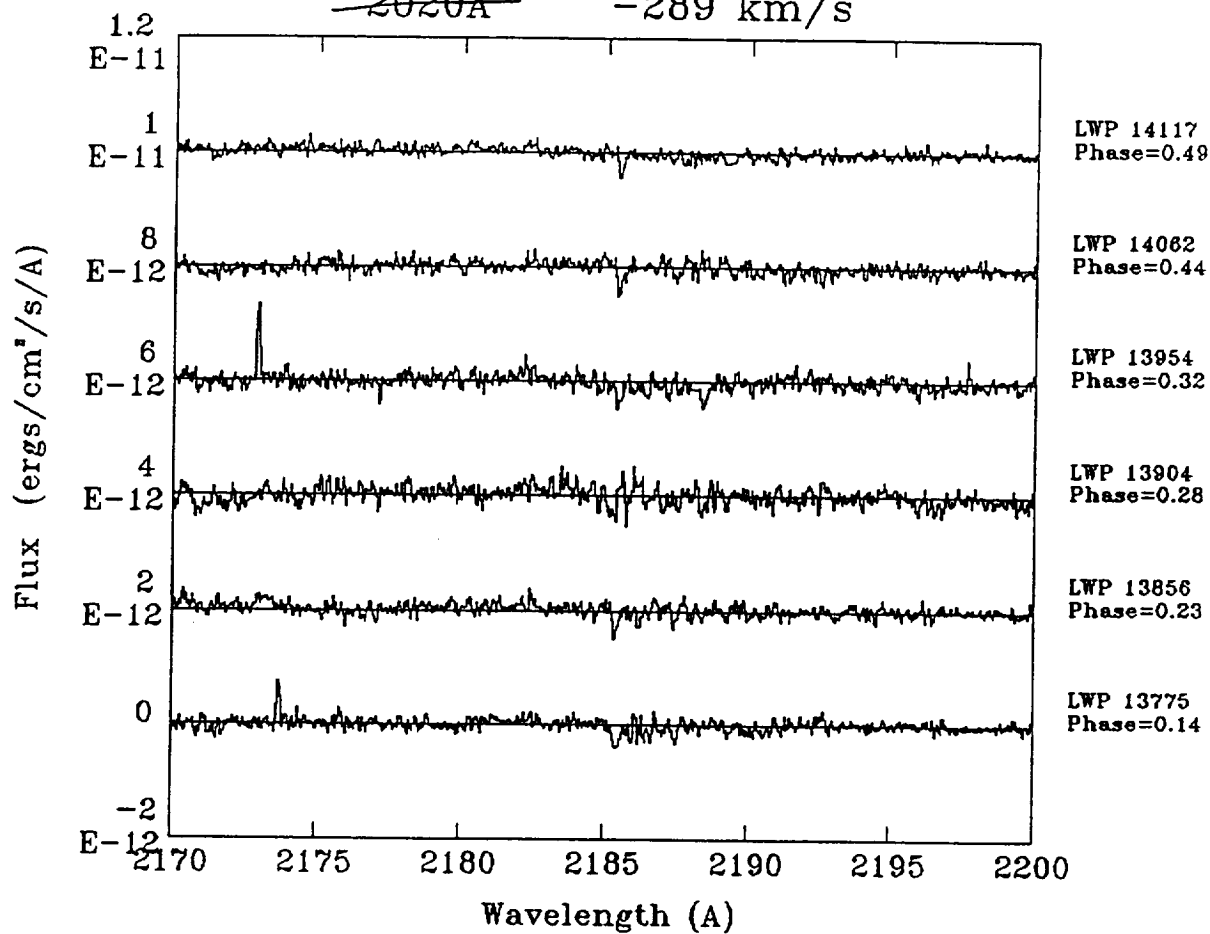
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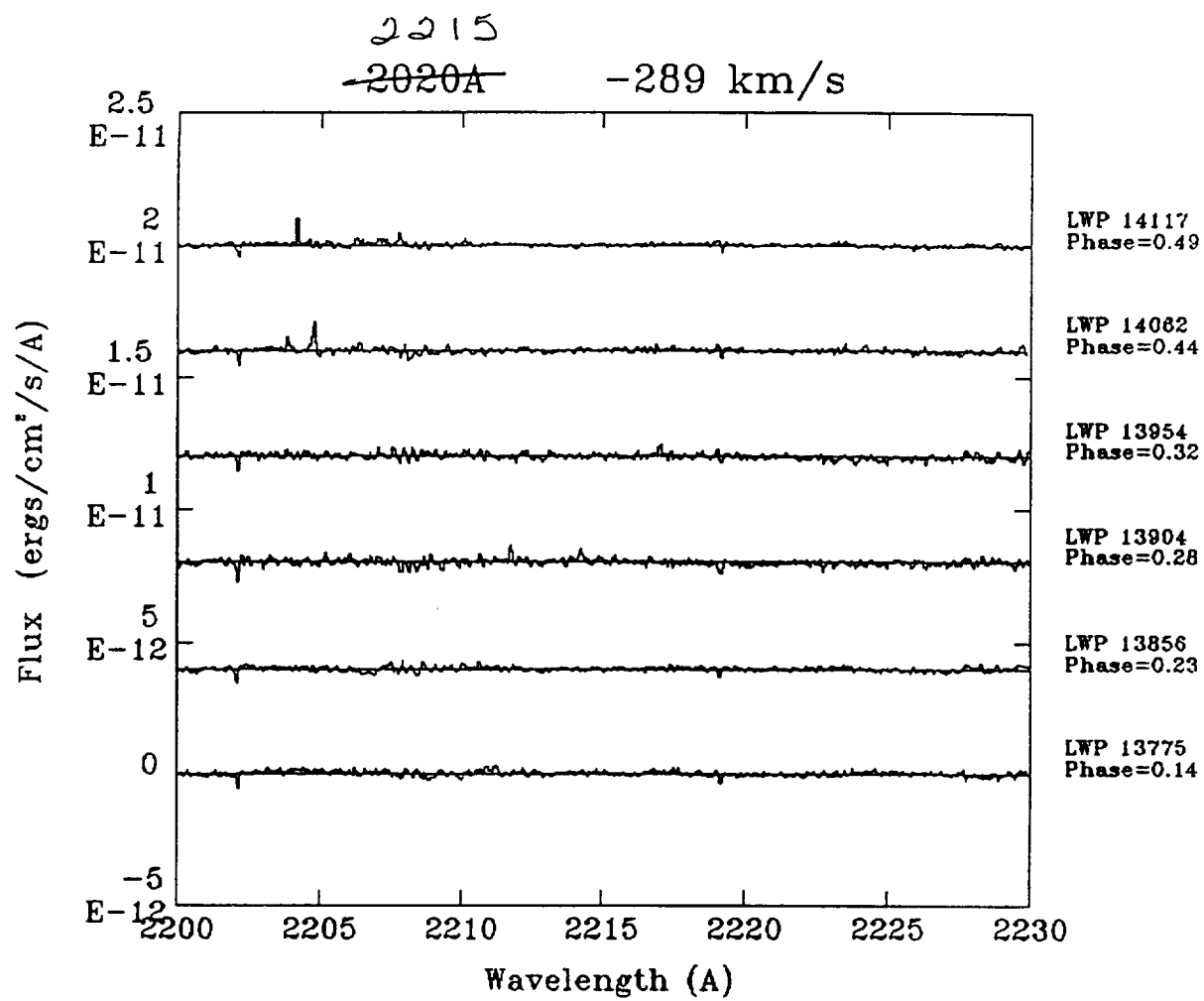
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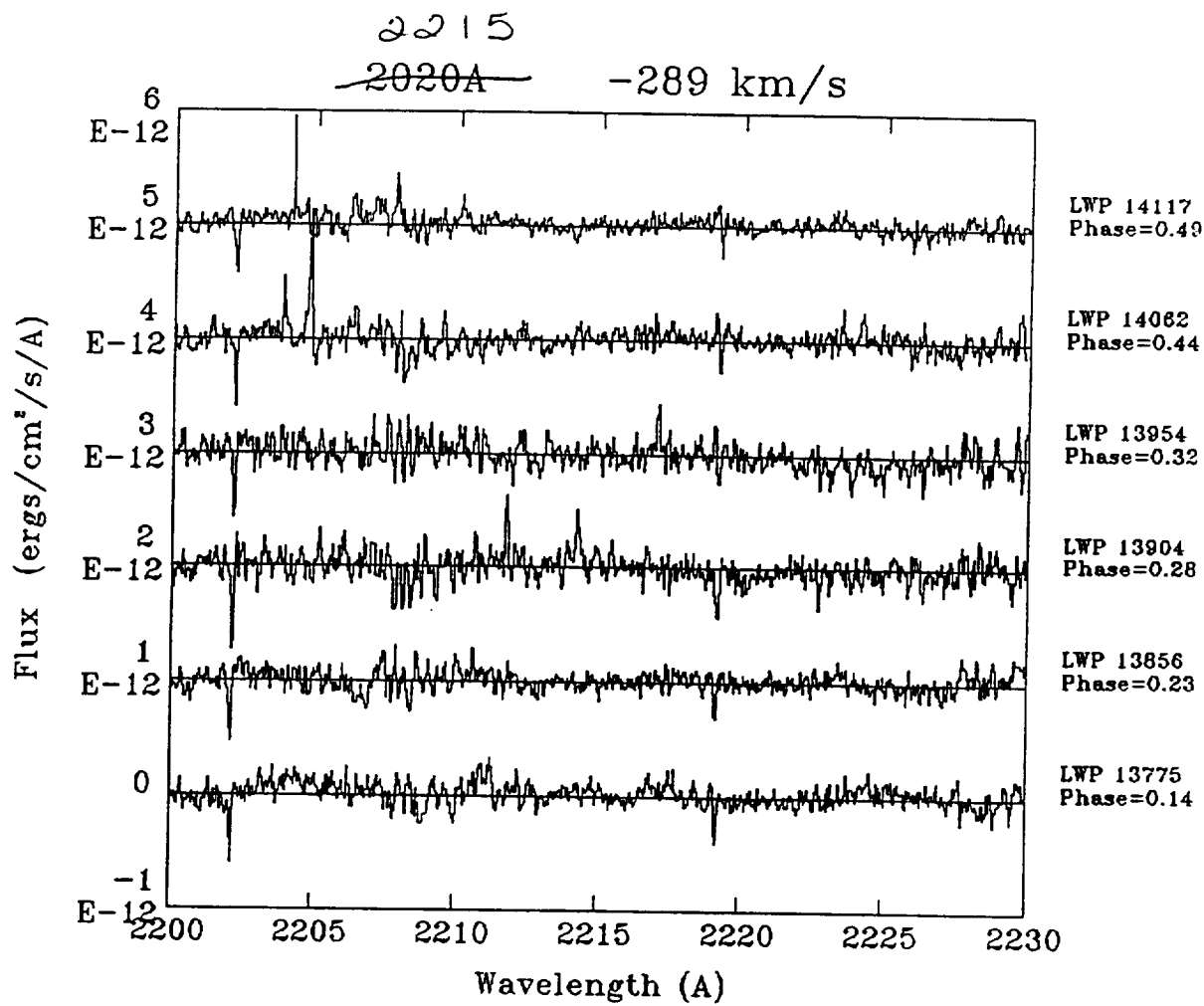
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-289 km/s

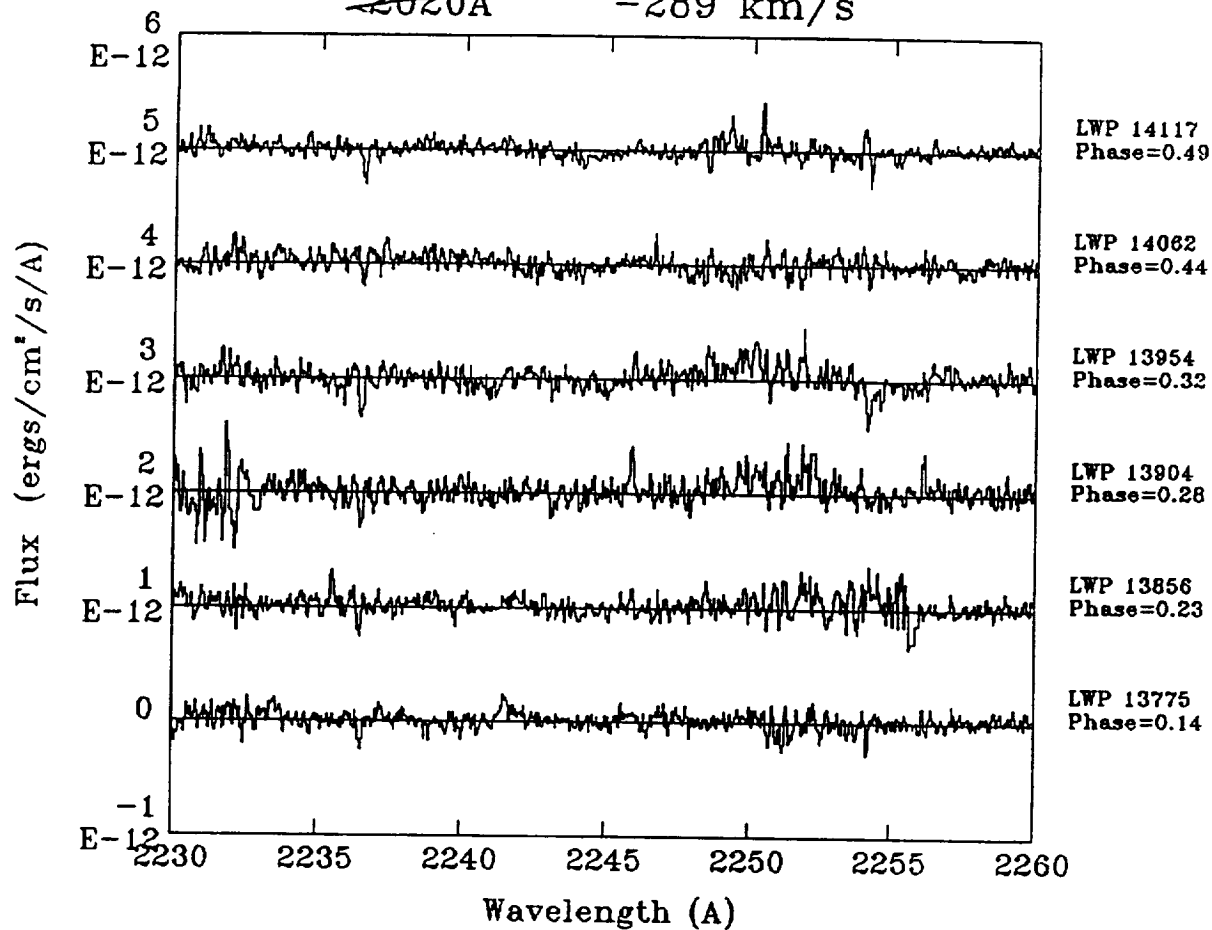


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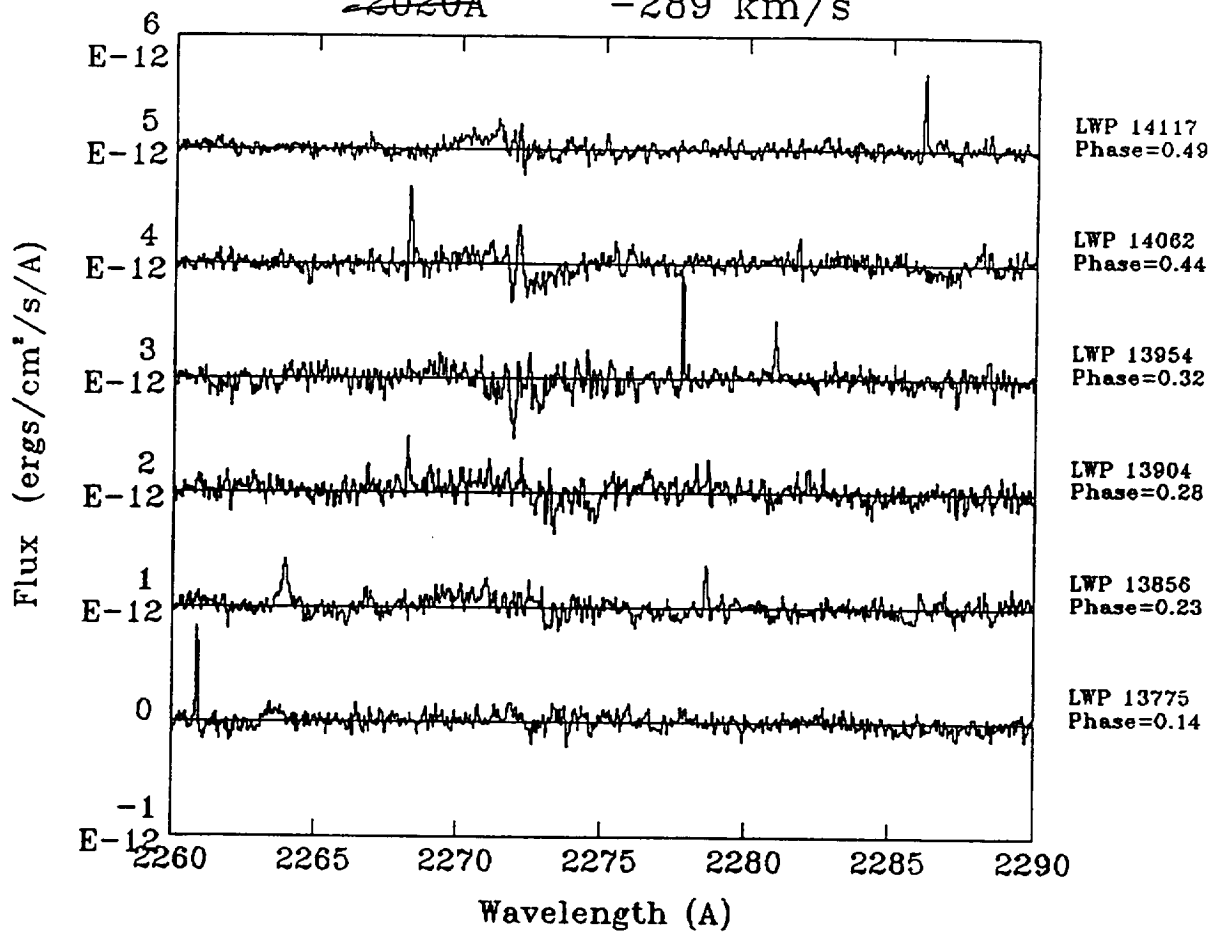




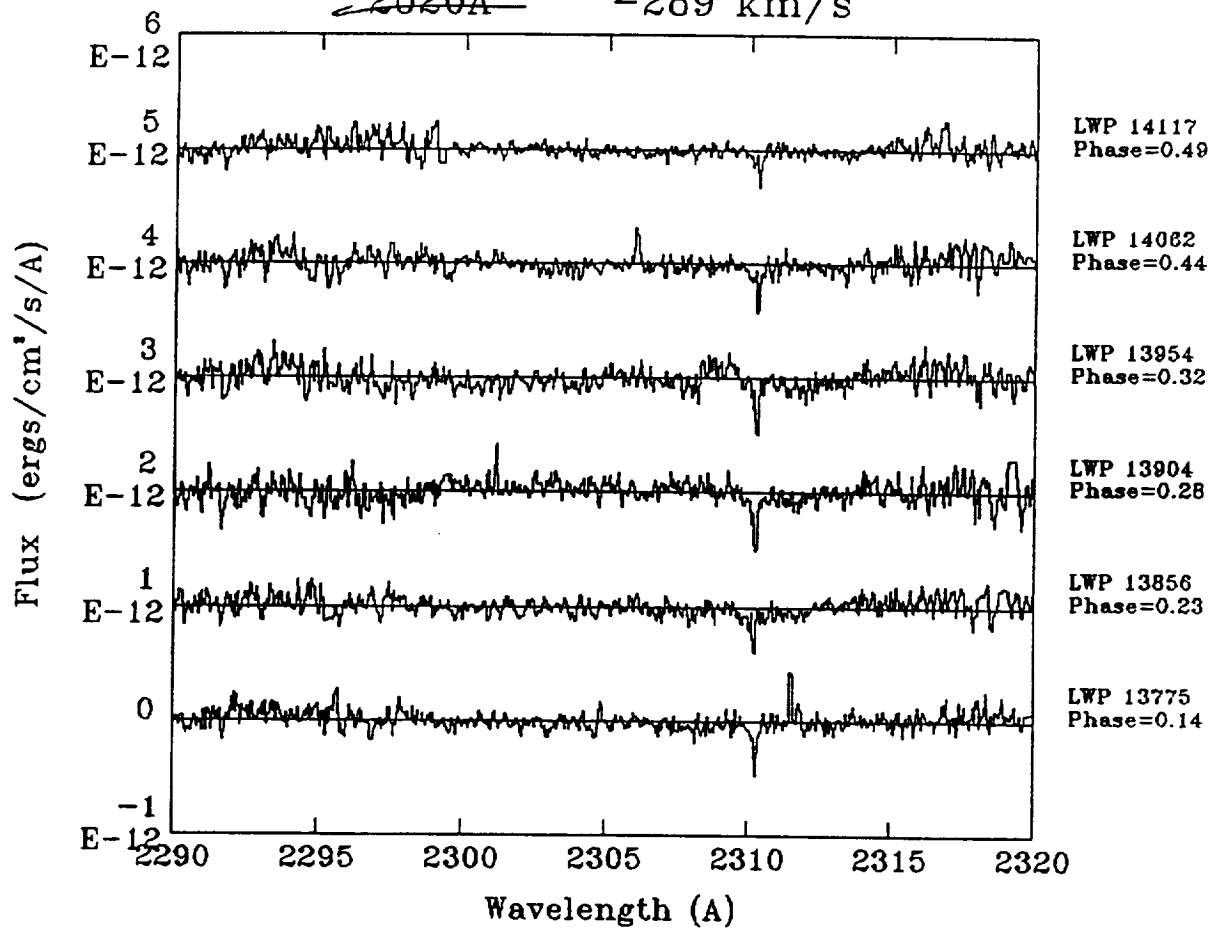
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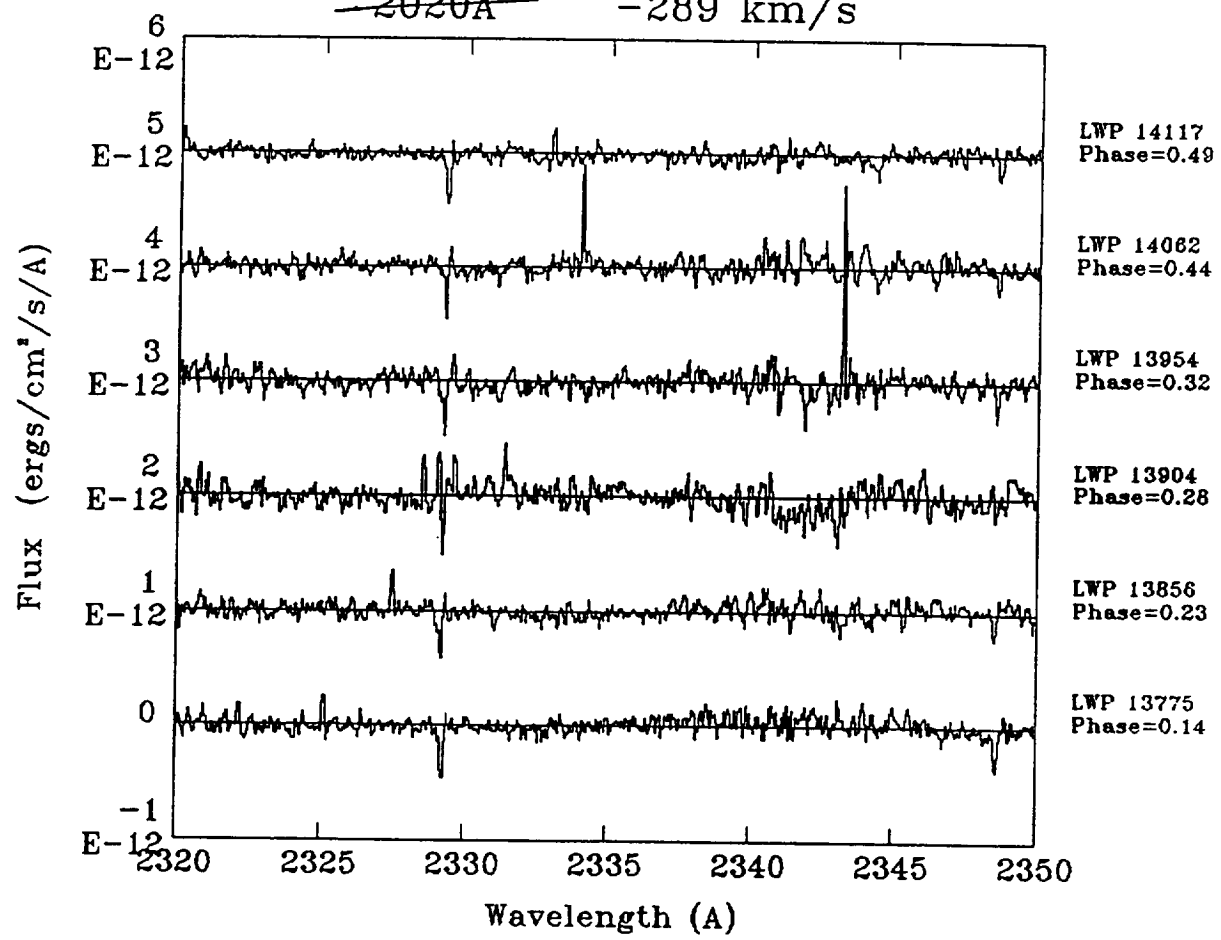
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2305
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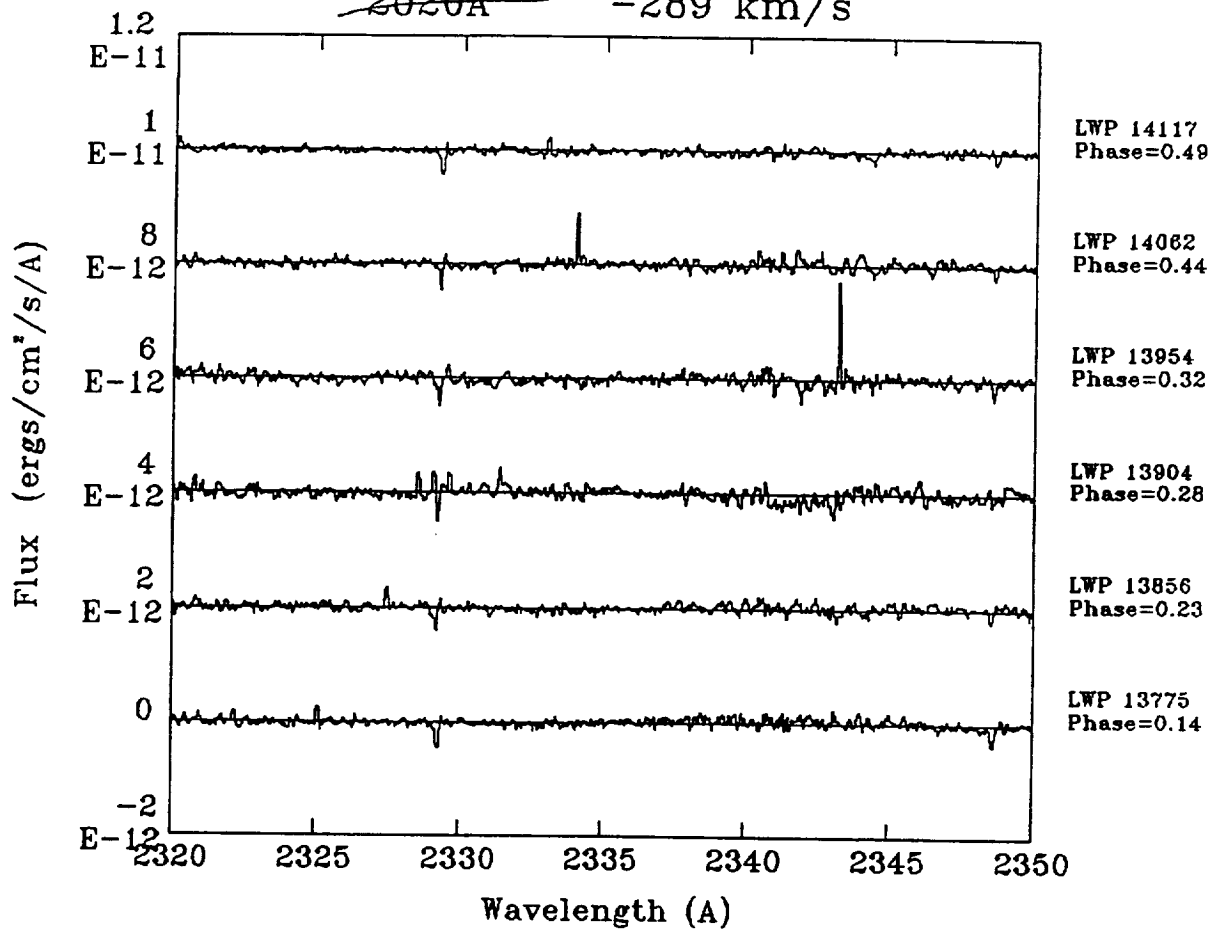
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2335

~~2020A~~

-289 km/s

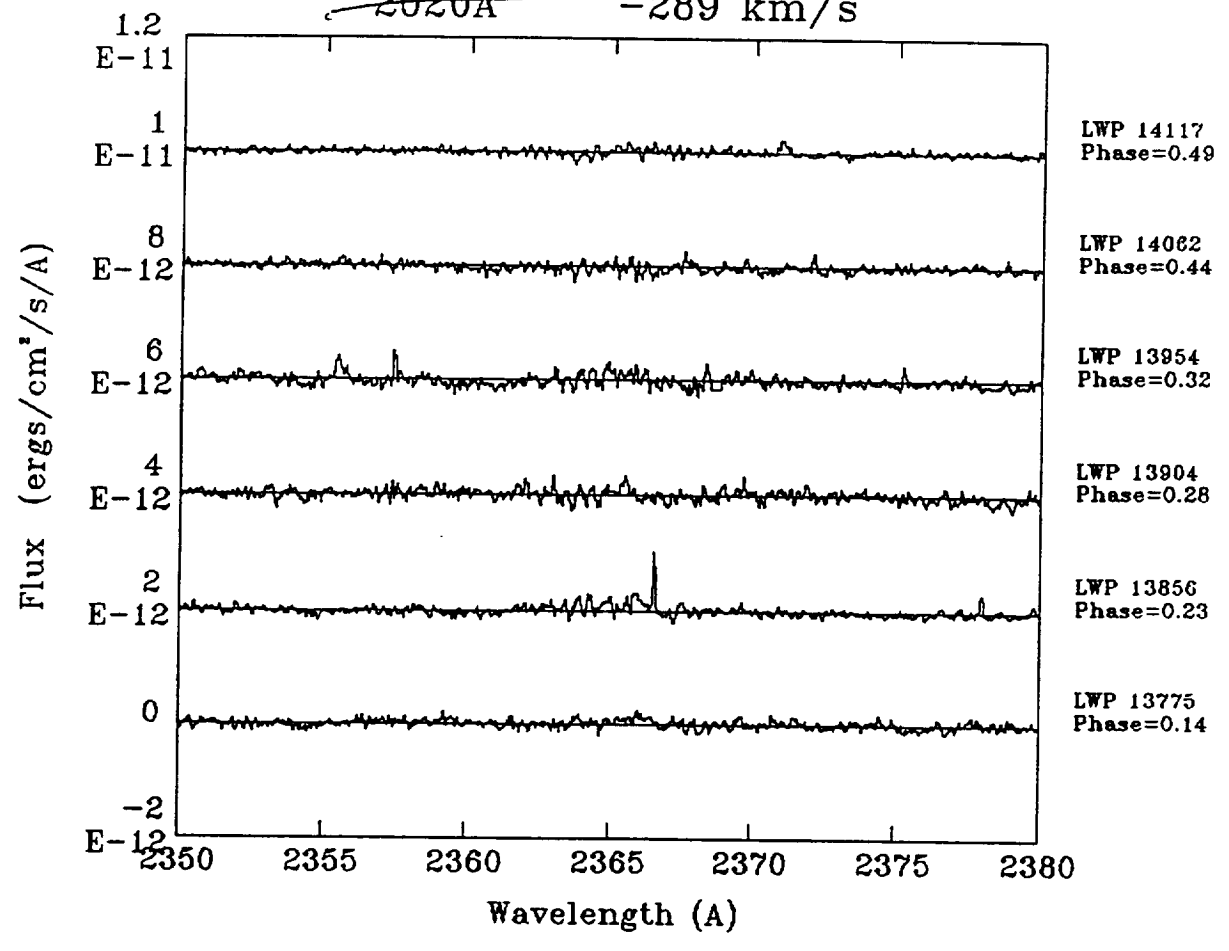


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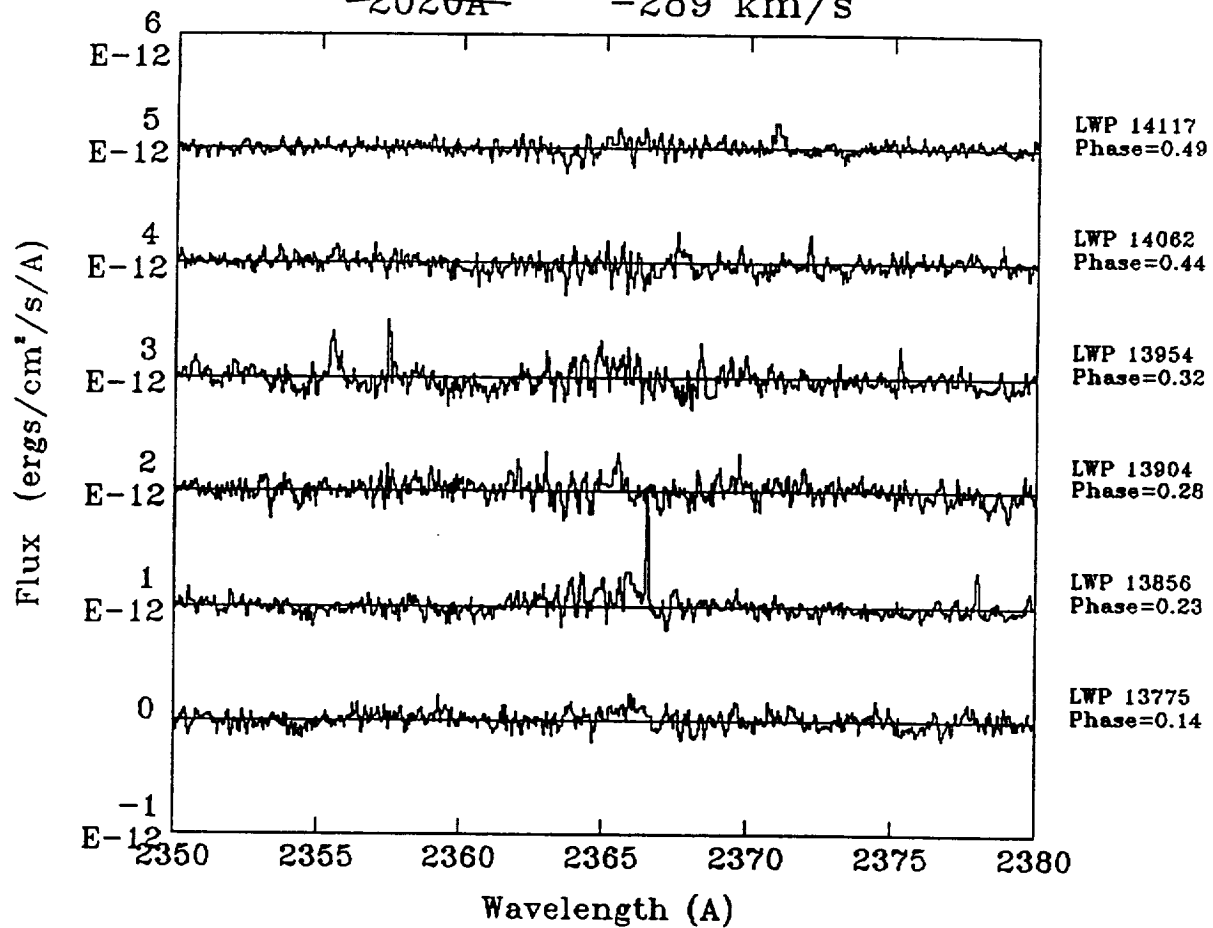
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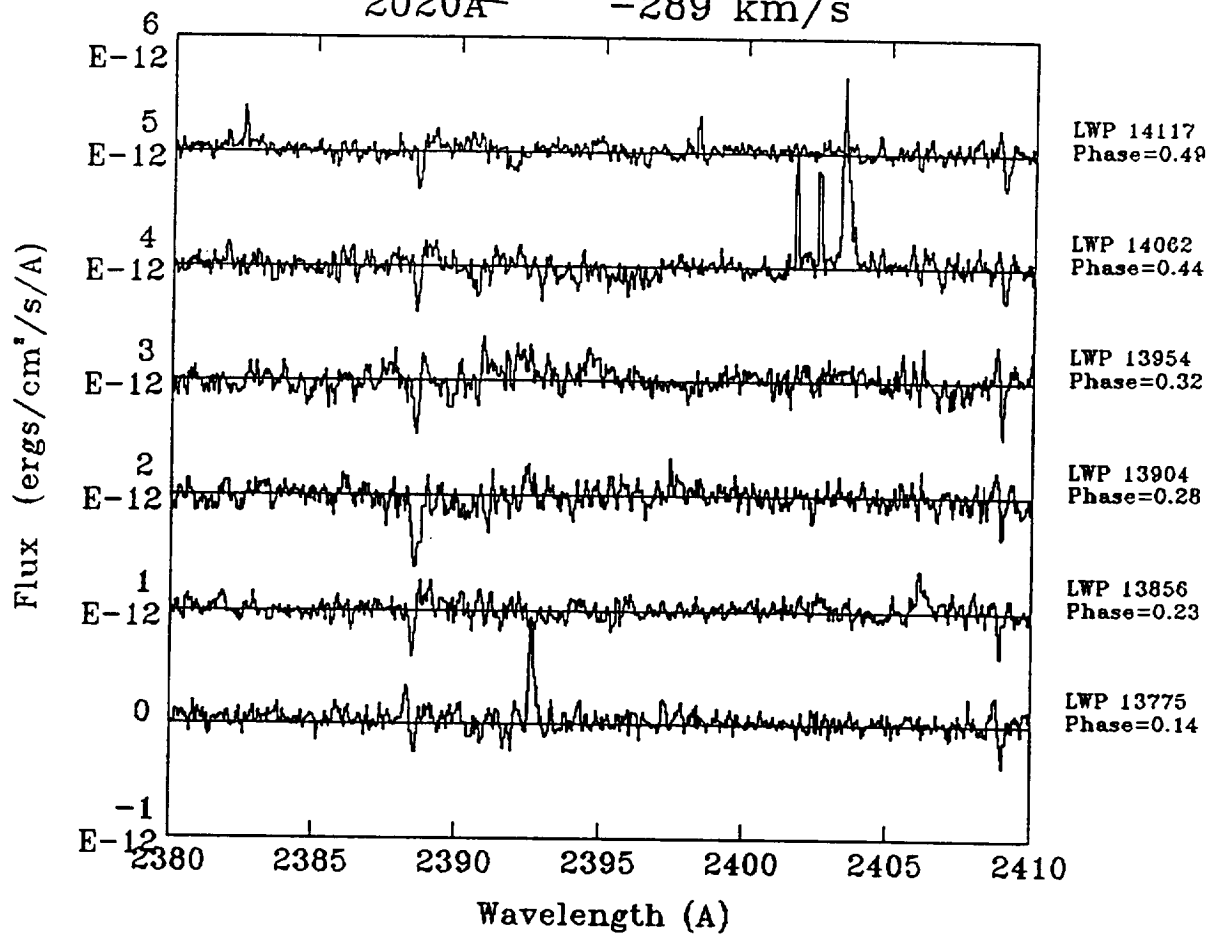


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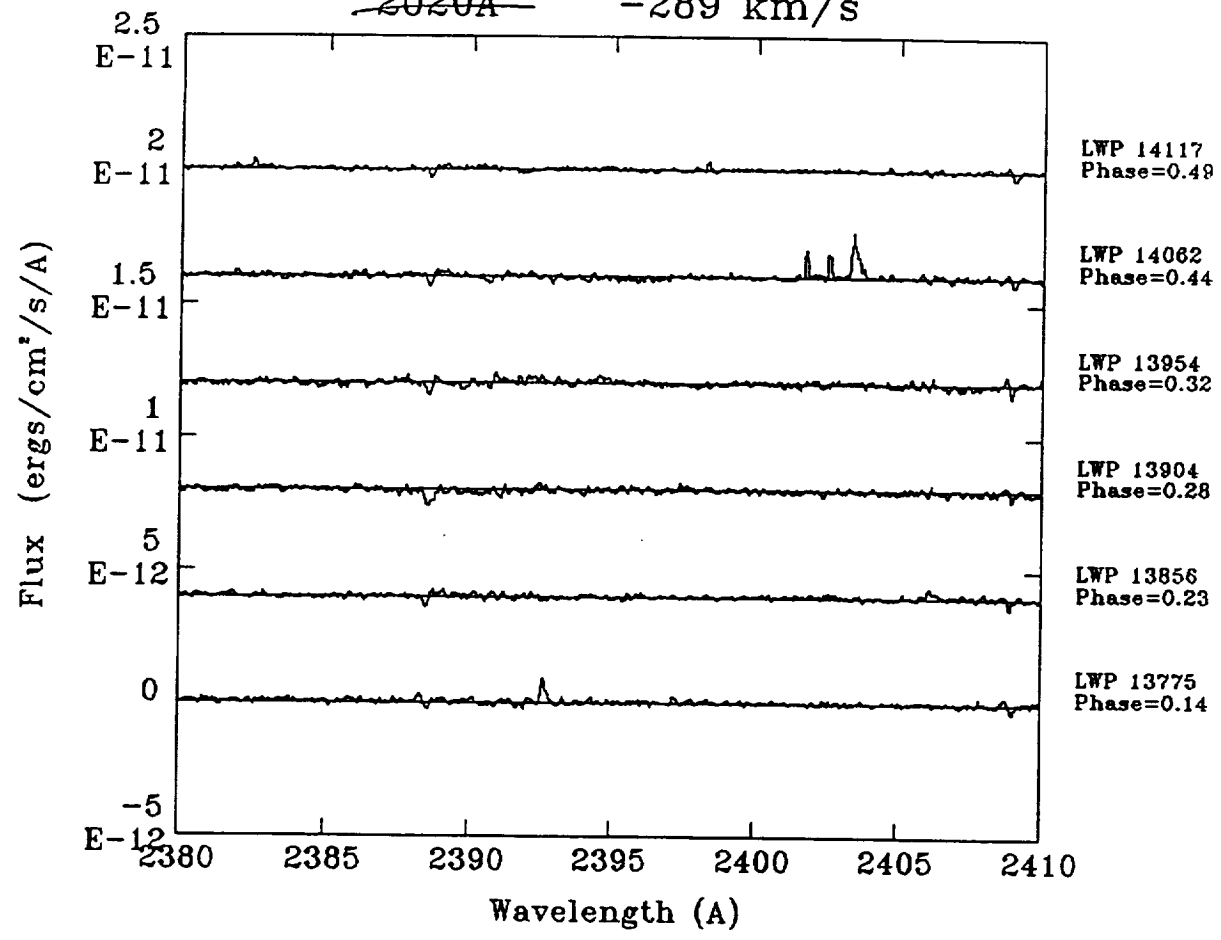


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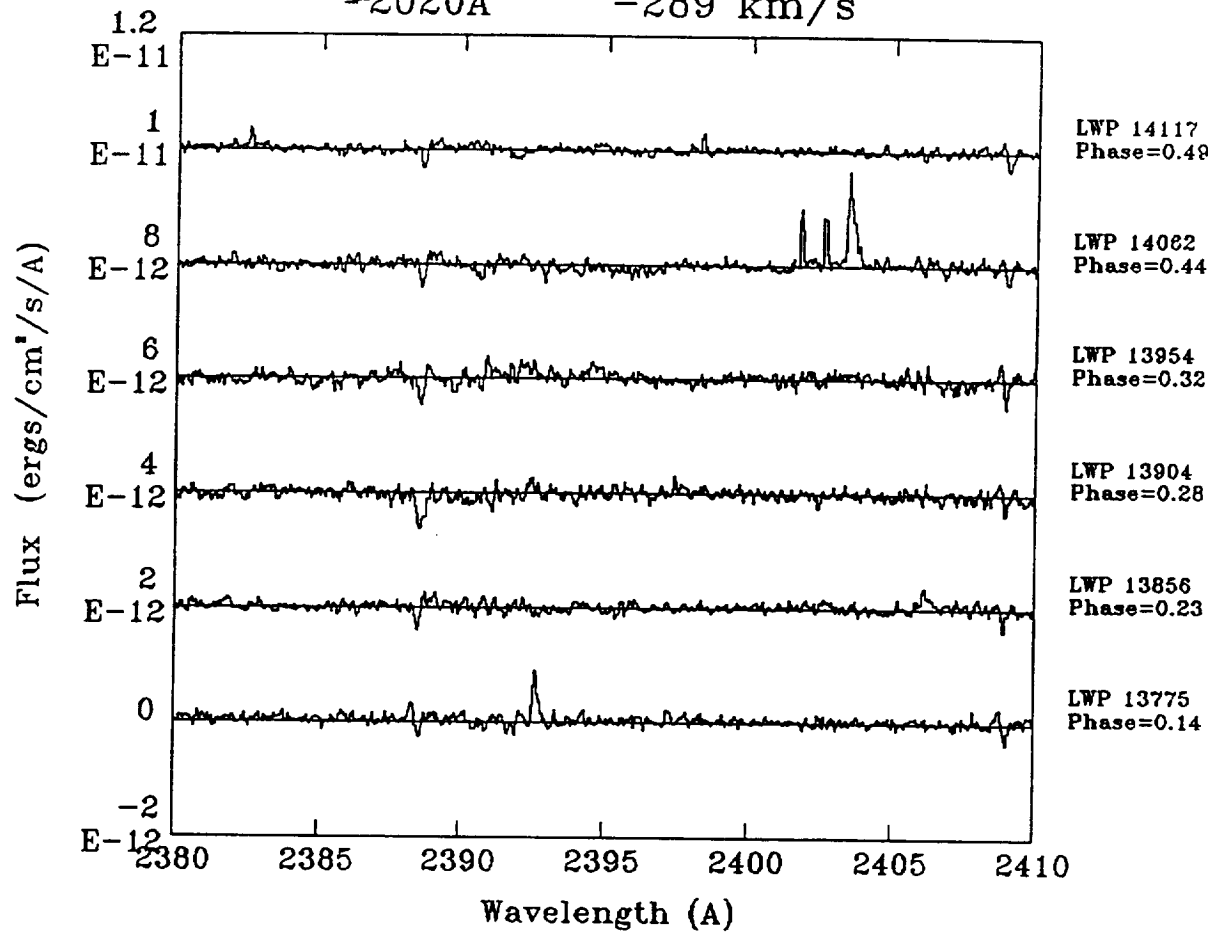
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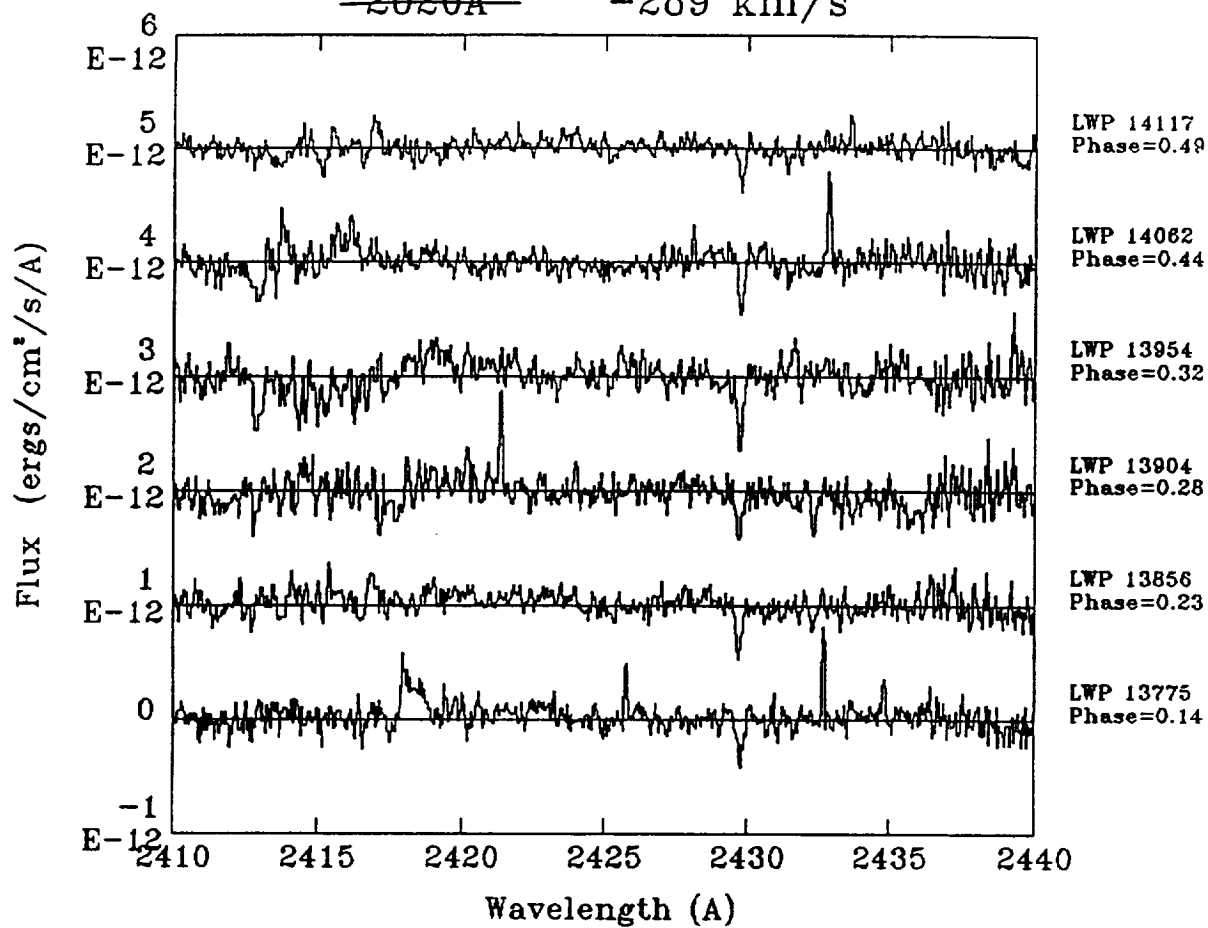
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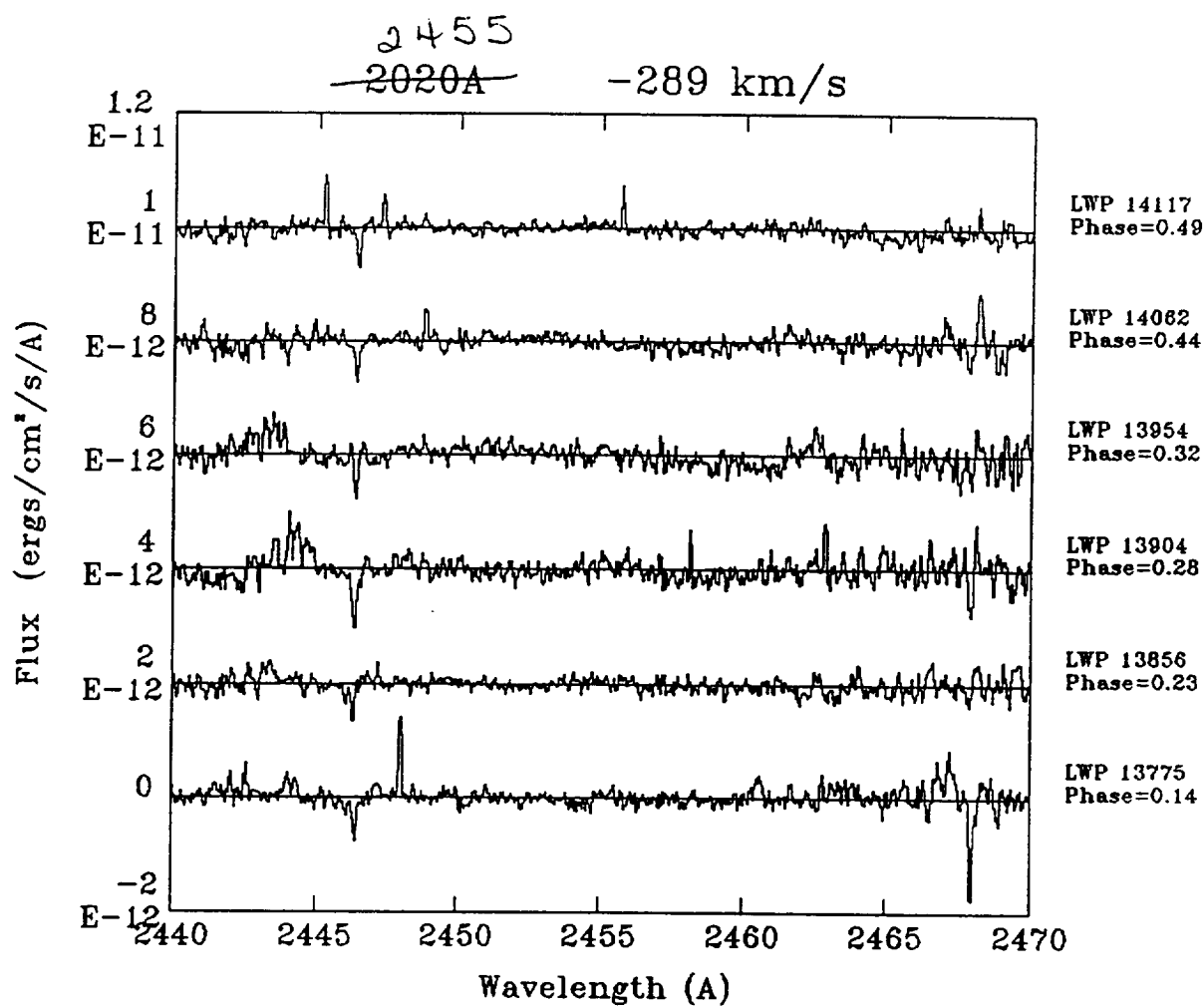


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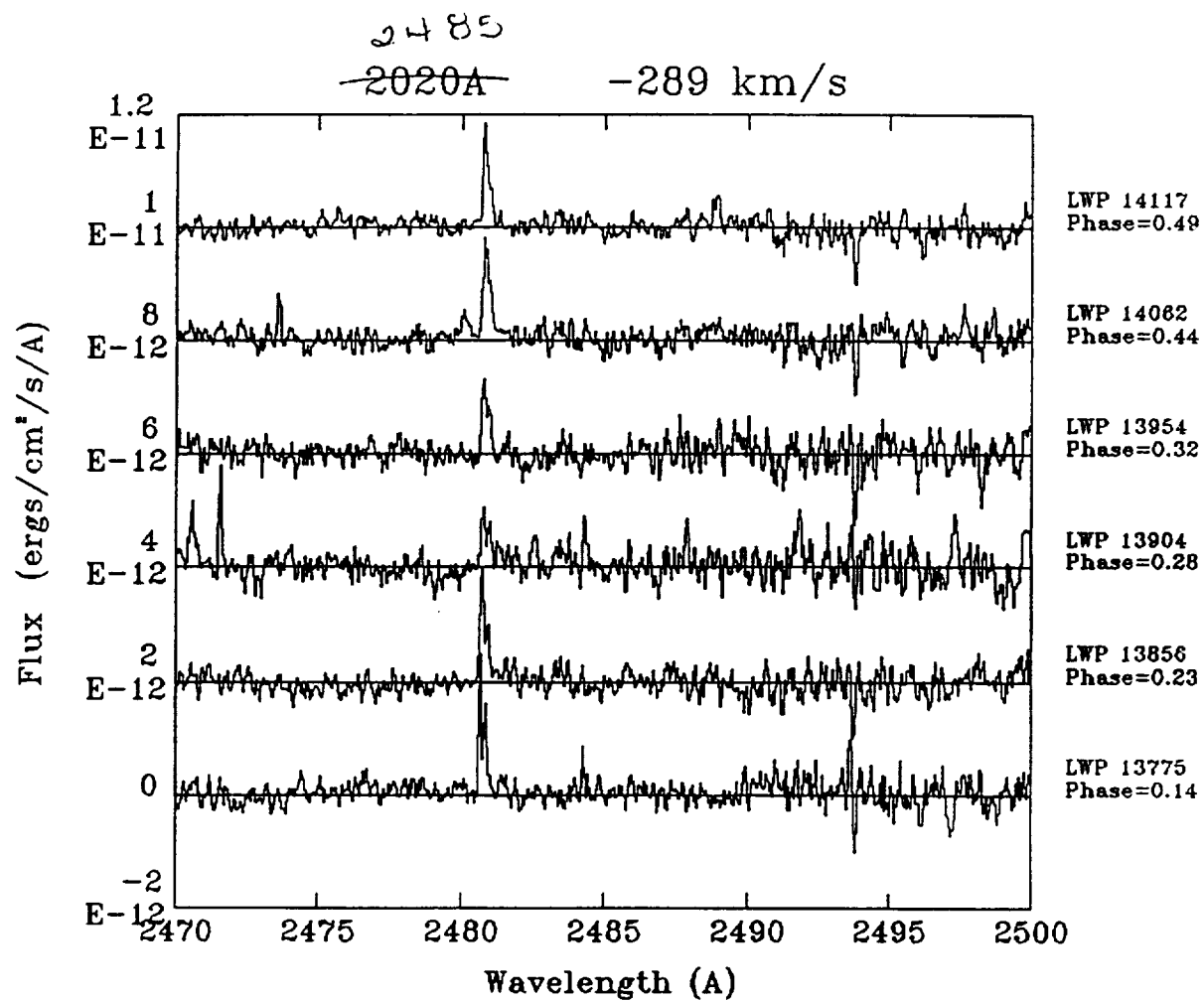
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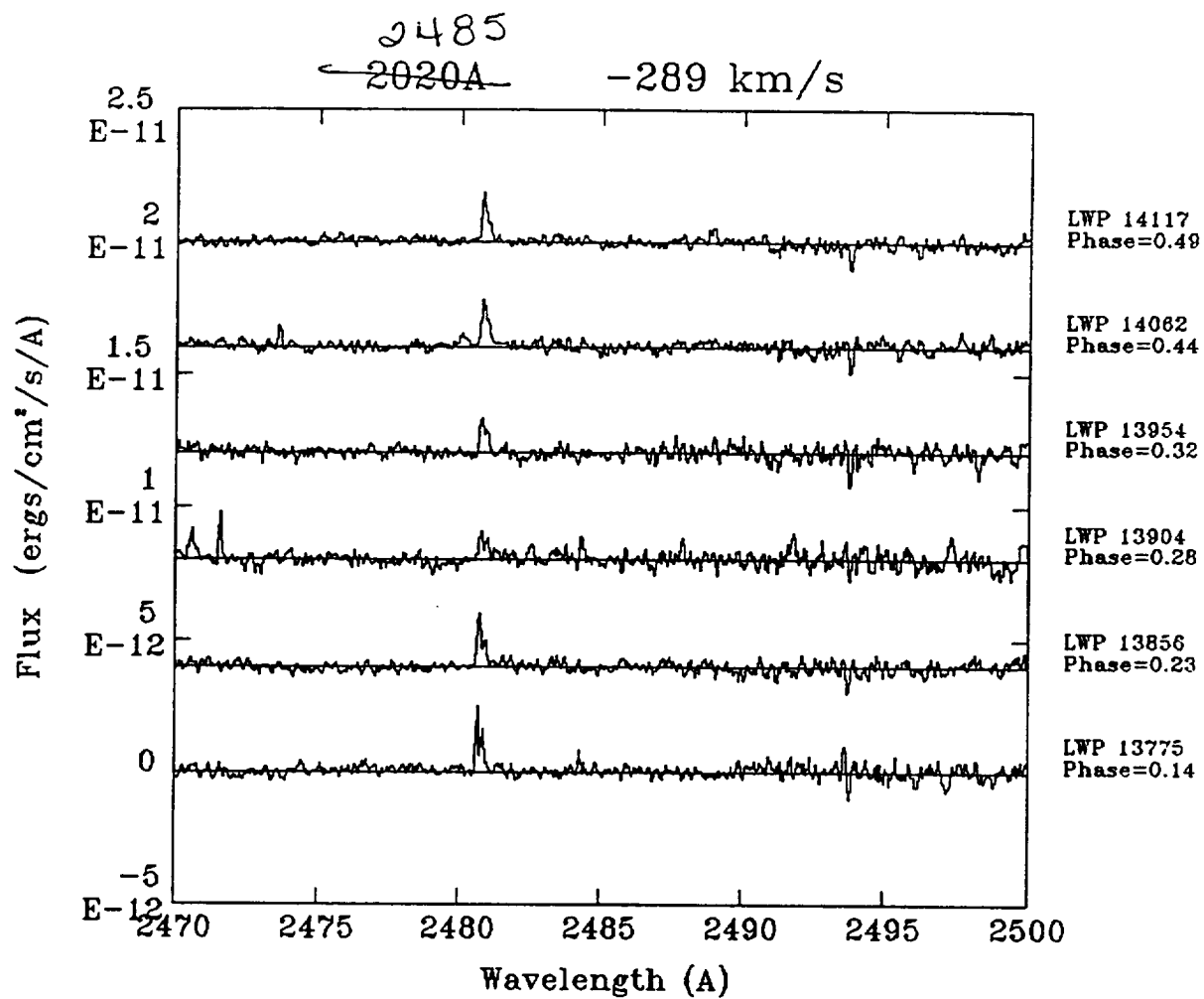




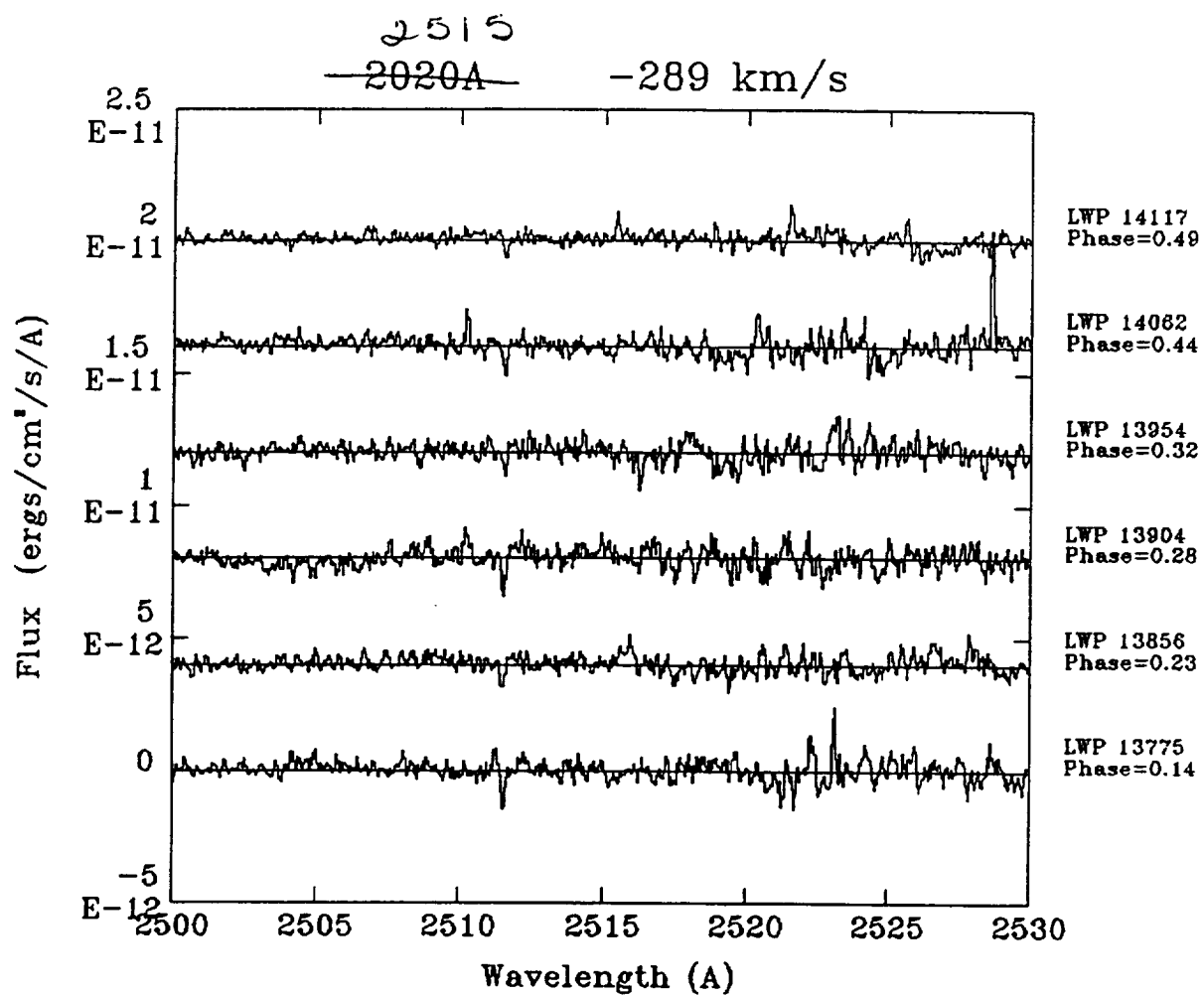
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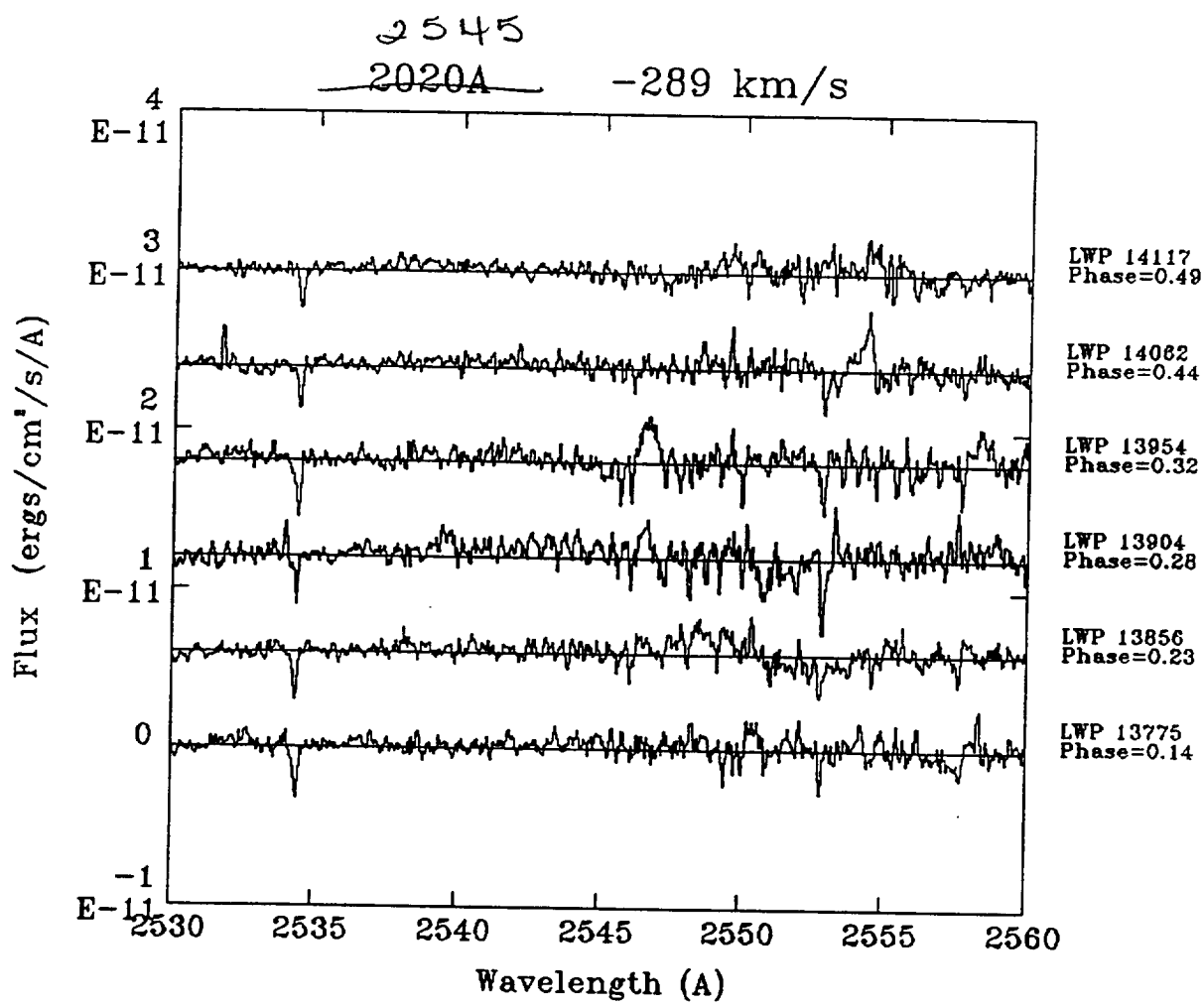
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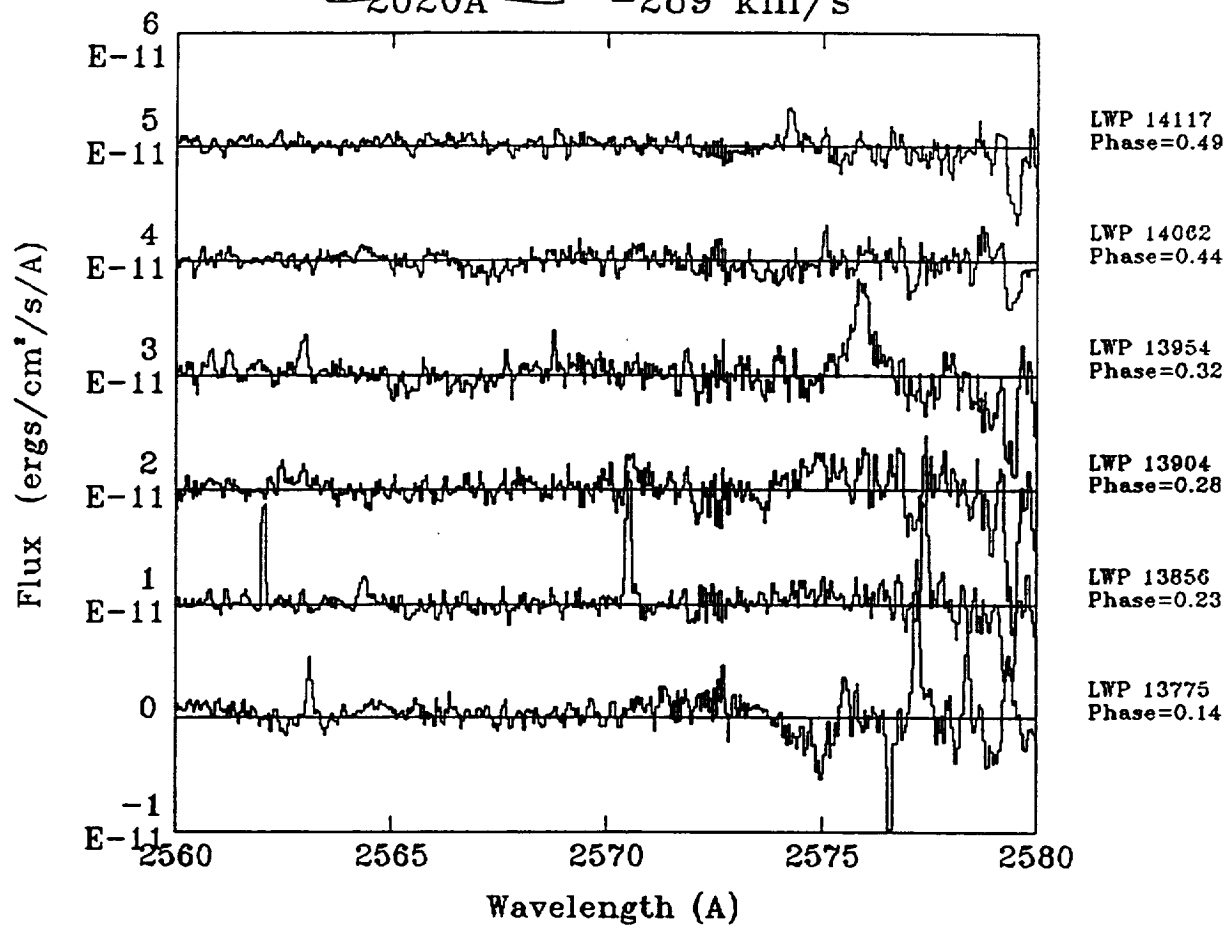
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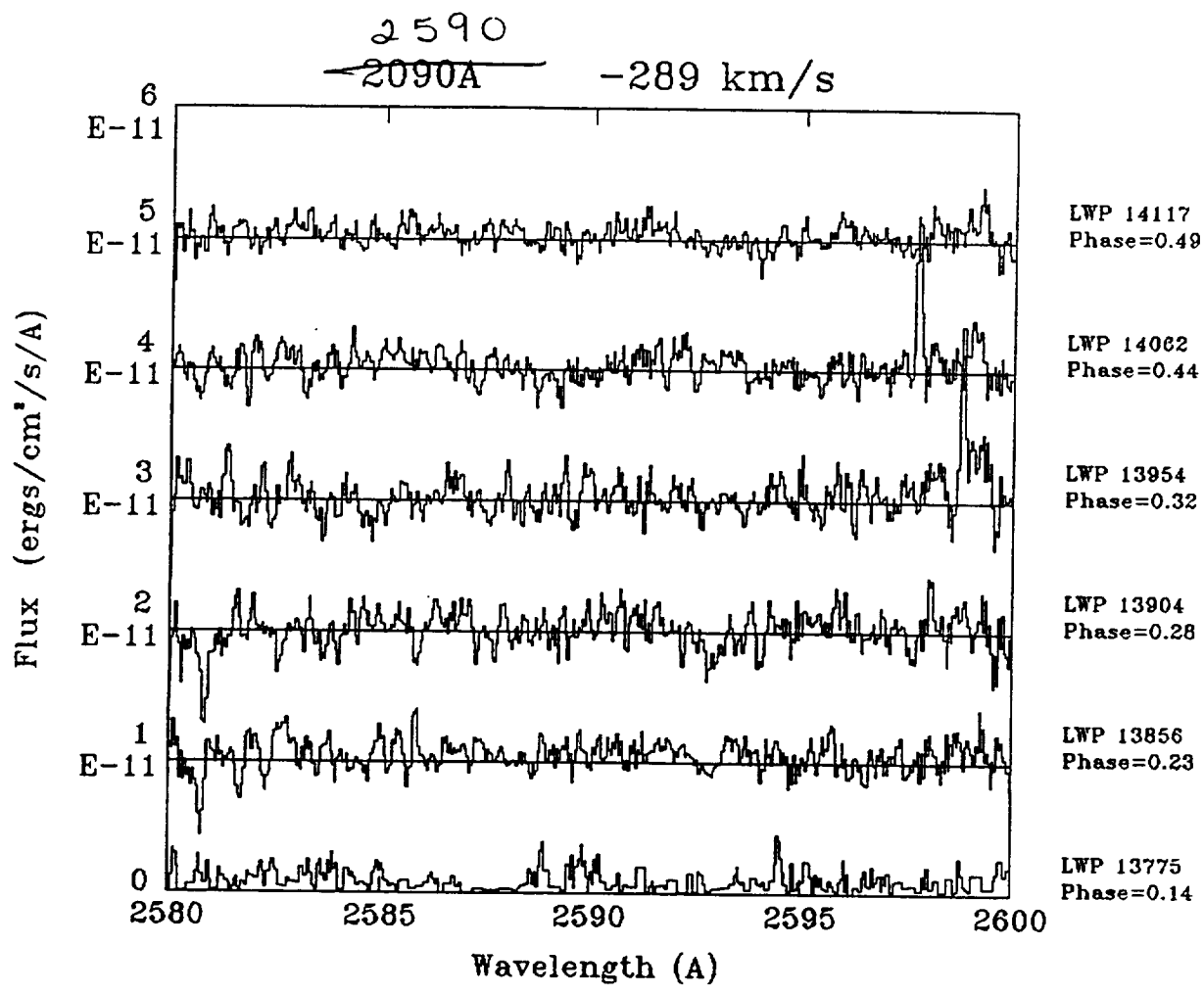
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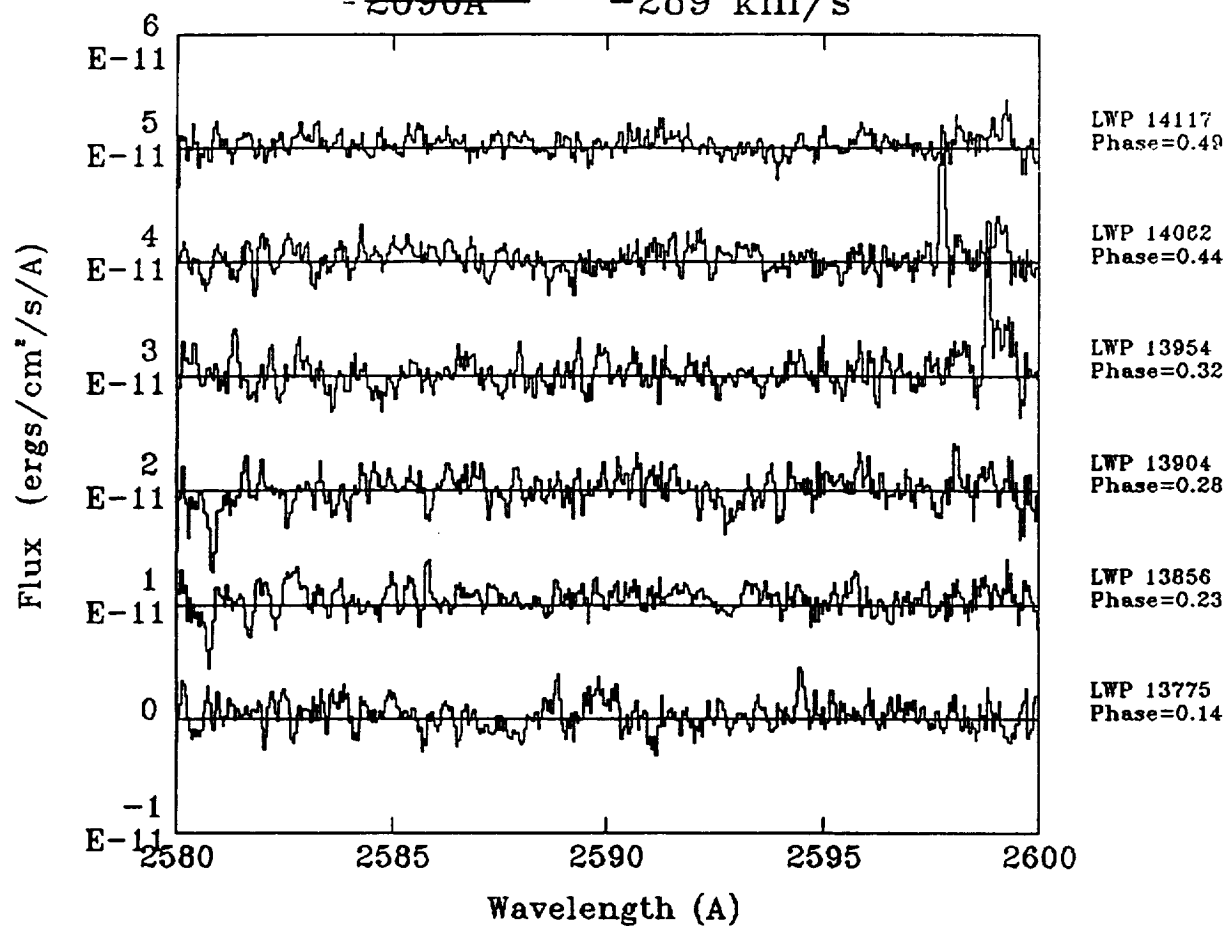
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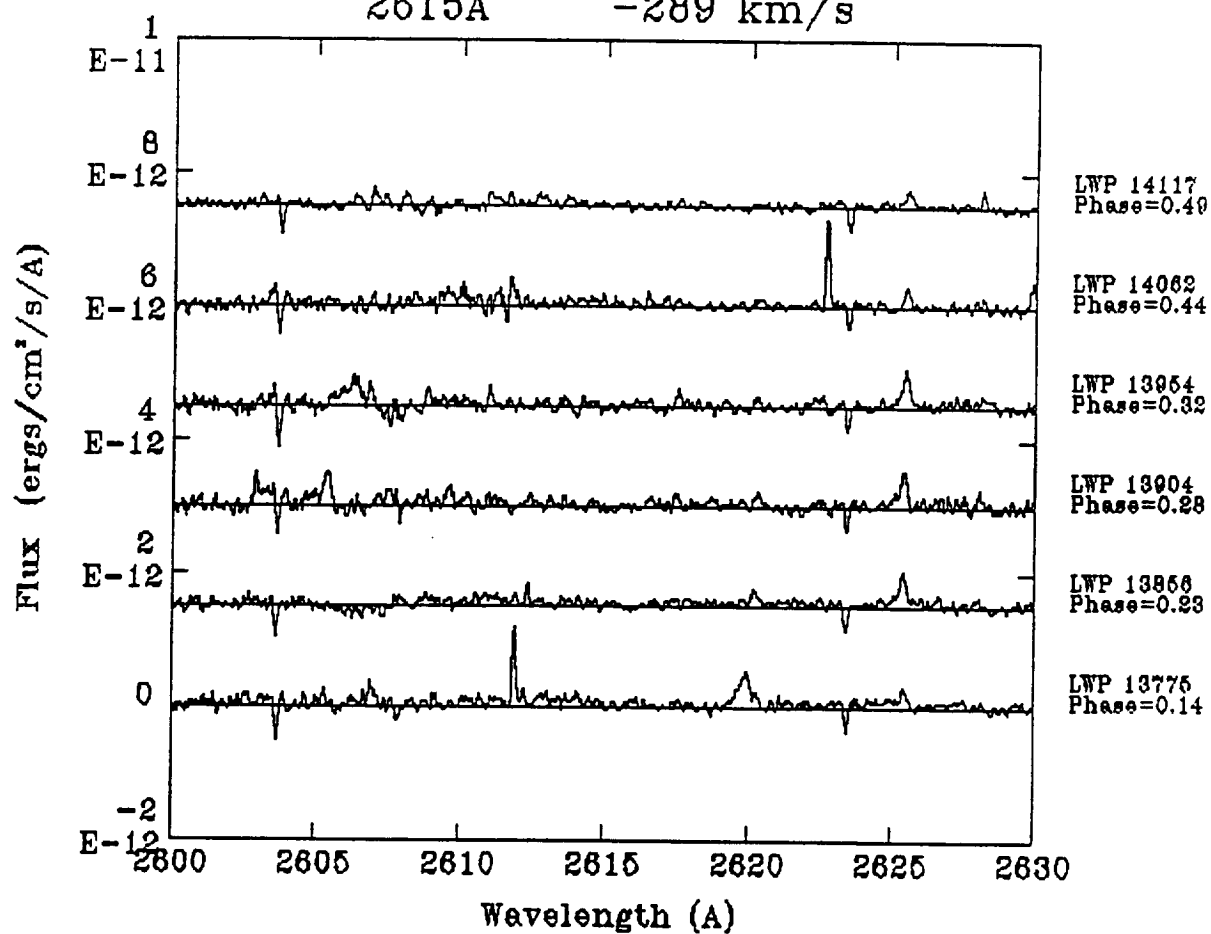
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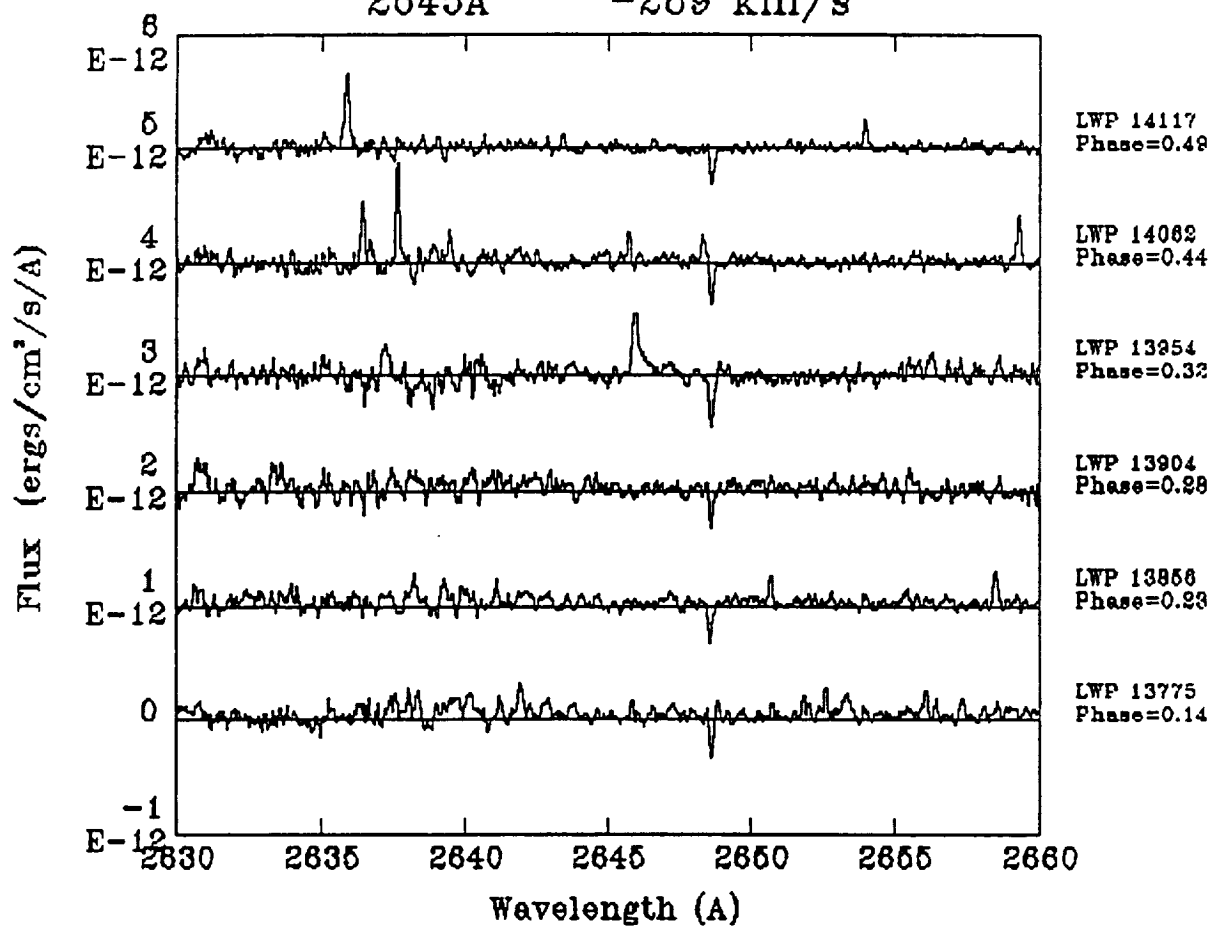
2590
-2090A- -289 km/s



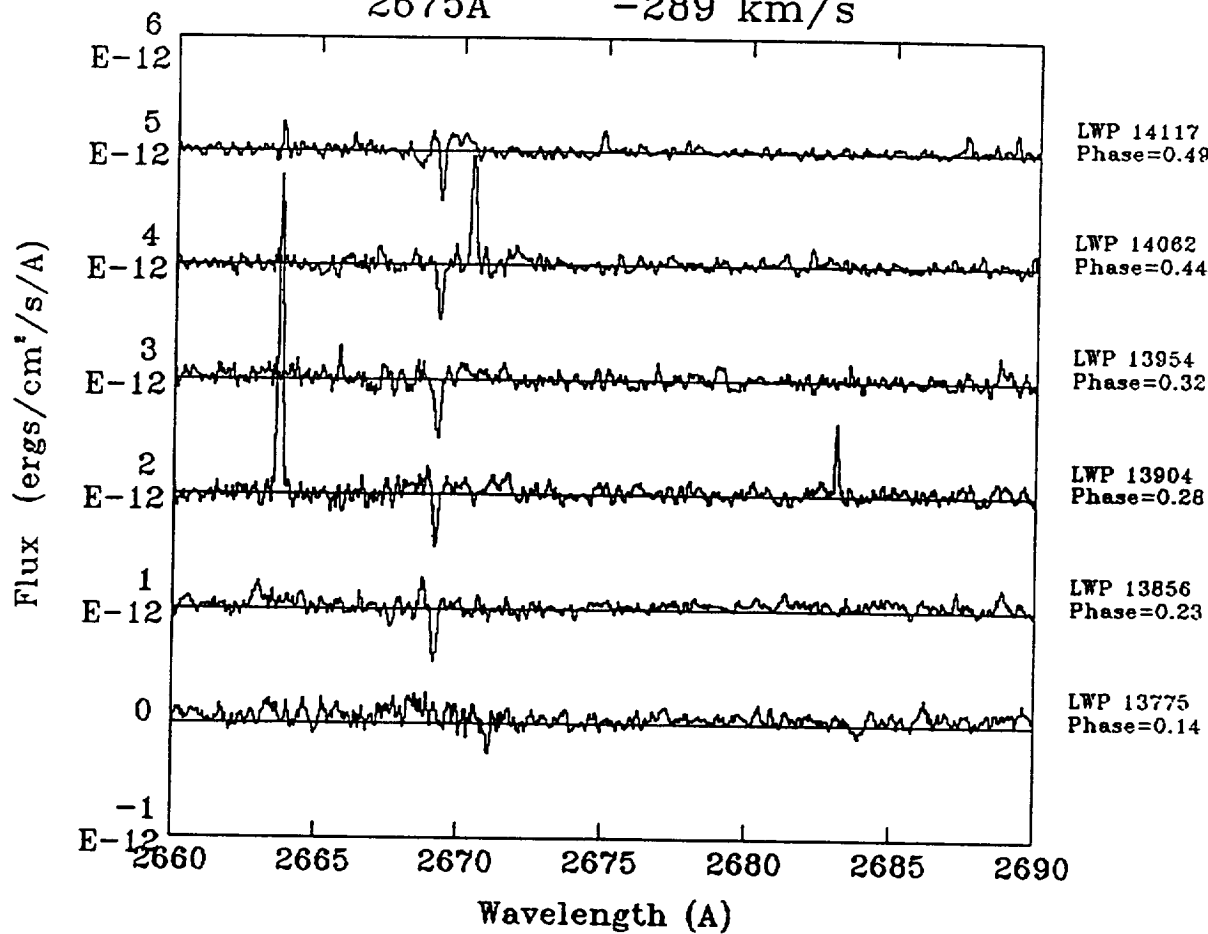
2615A -289 km/s



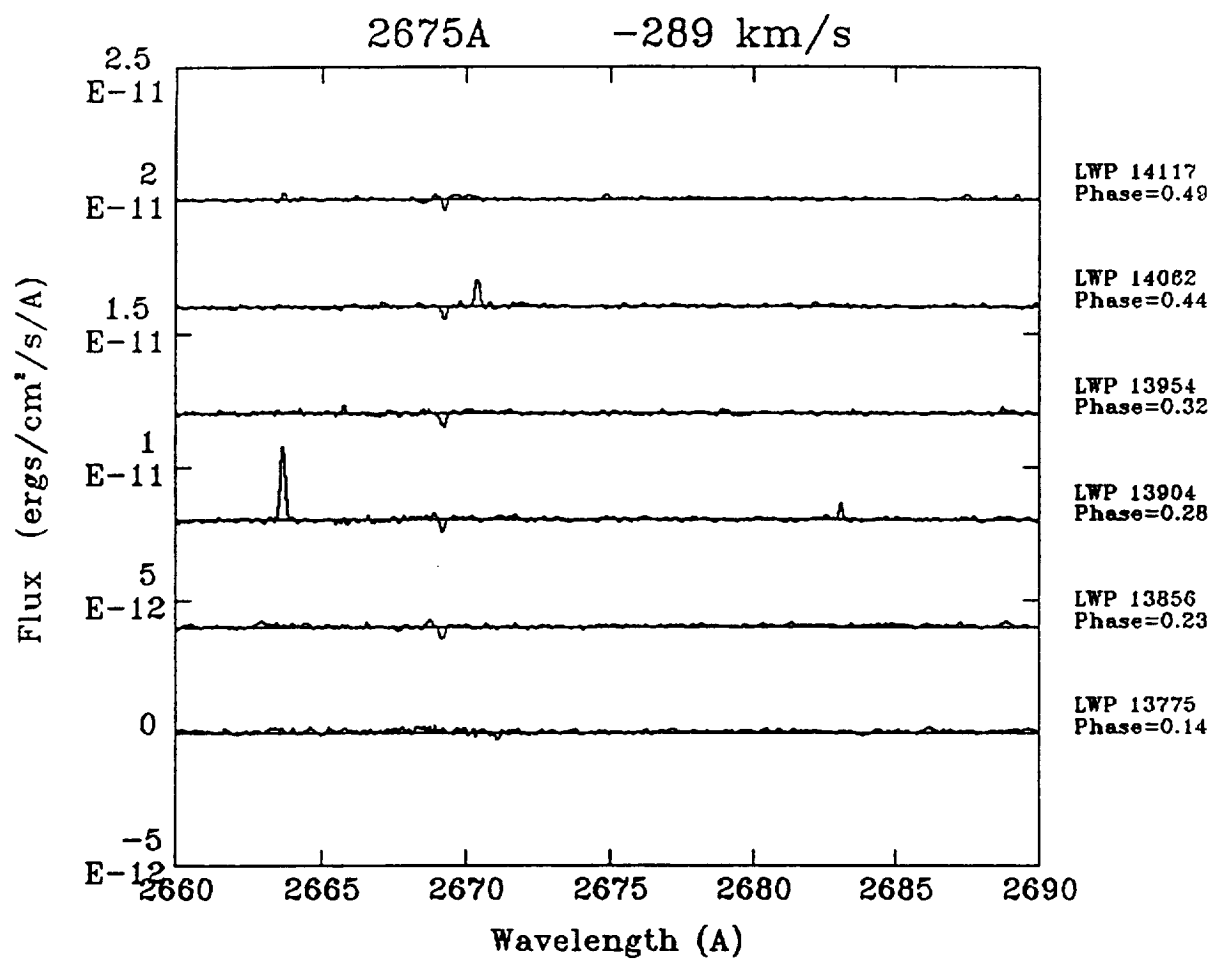
2645A -289 km/s

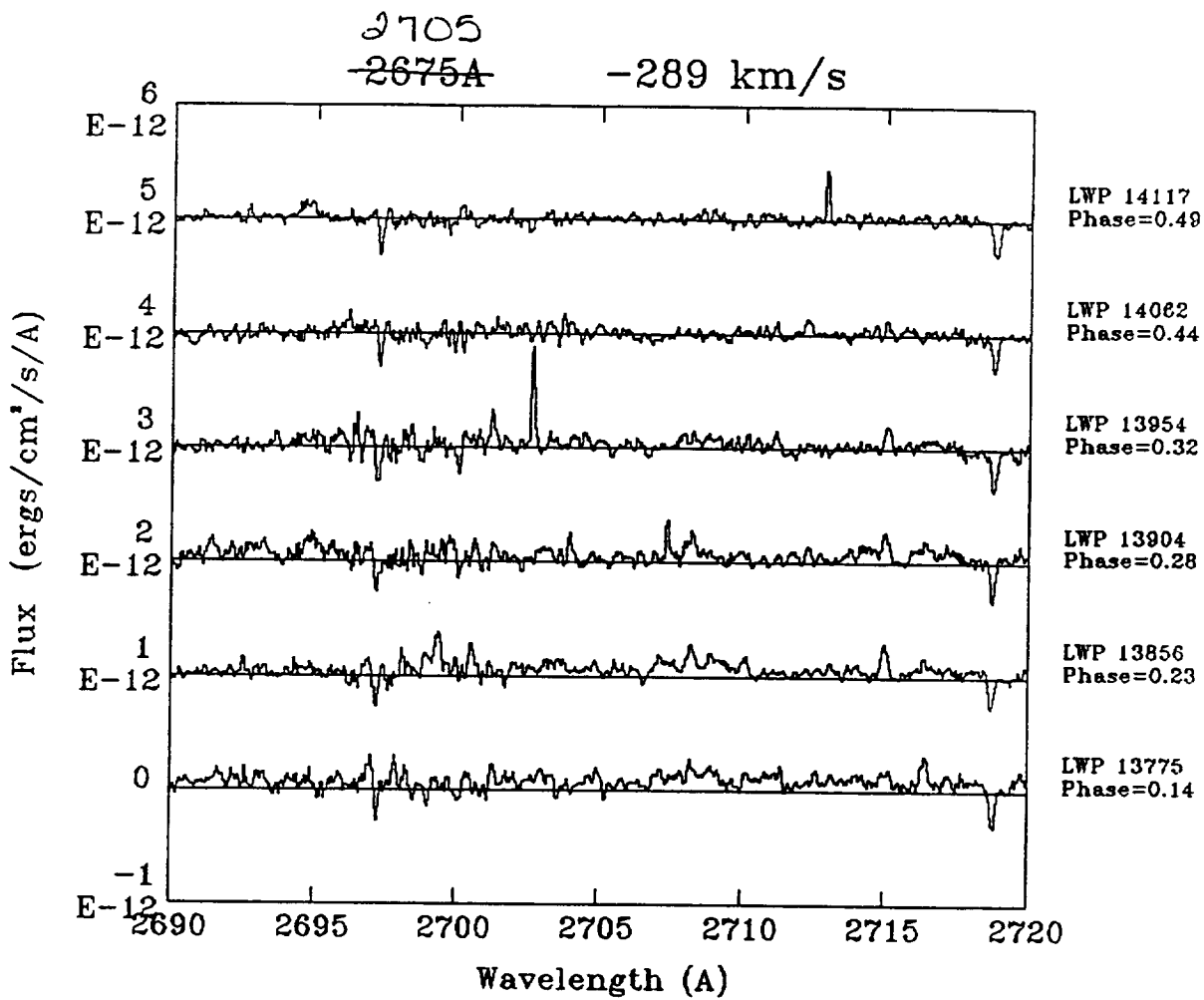


2675A -289 km/s



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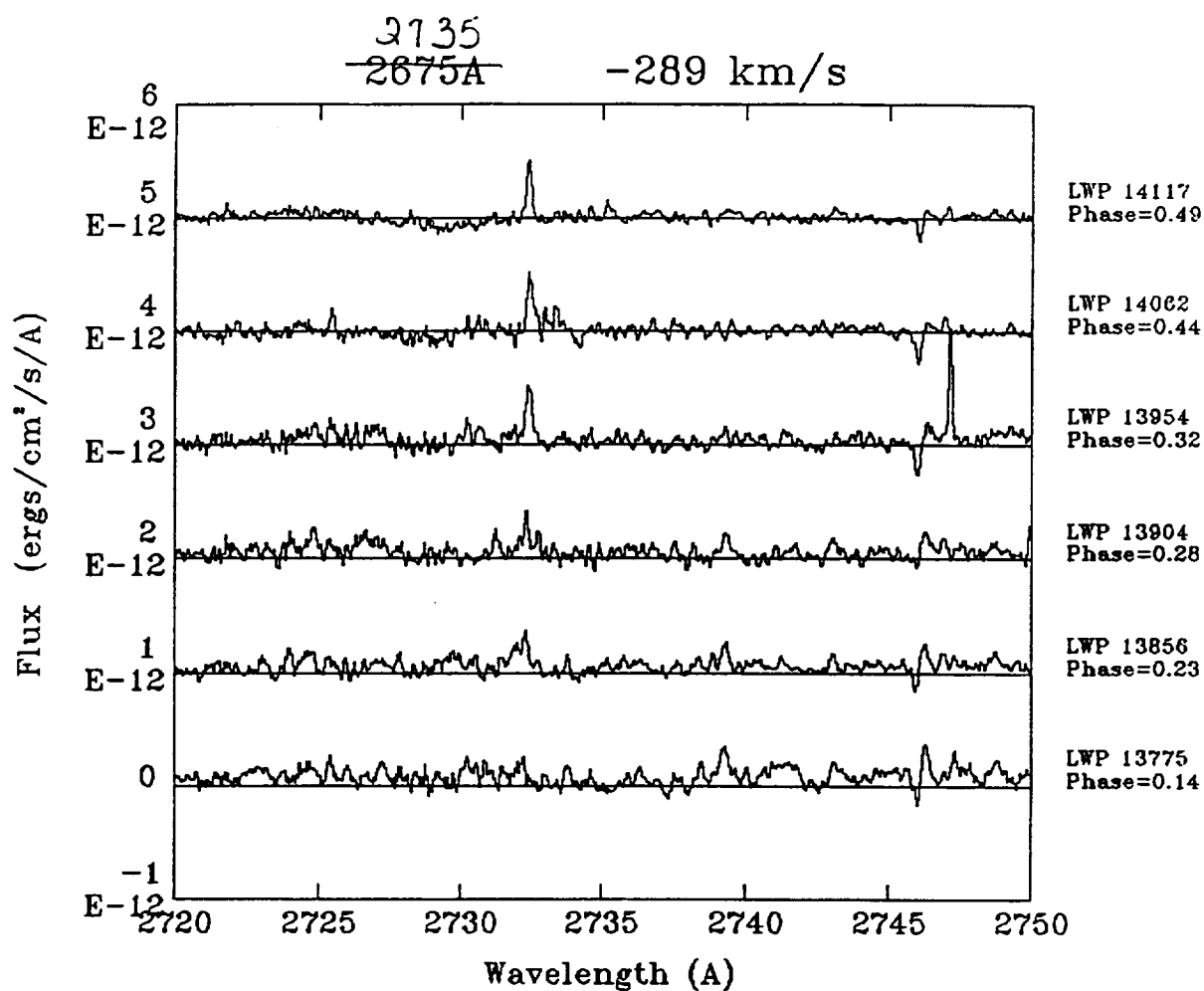




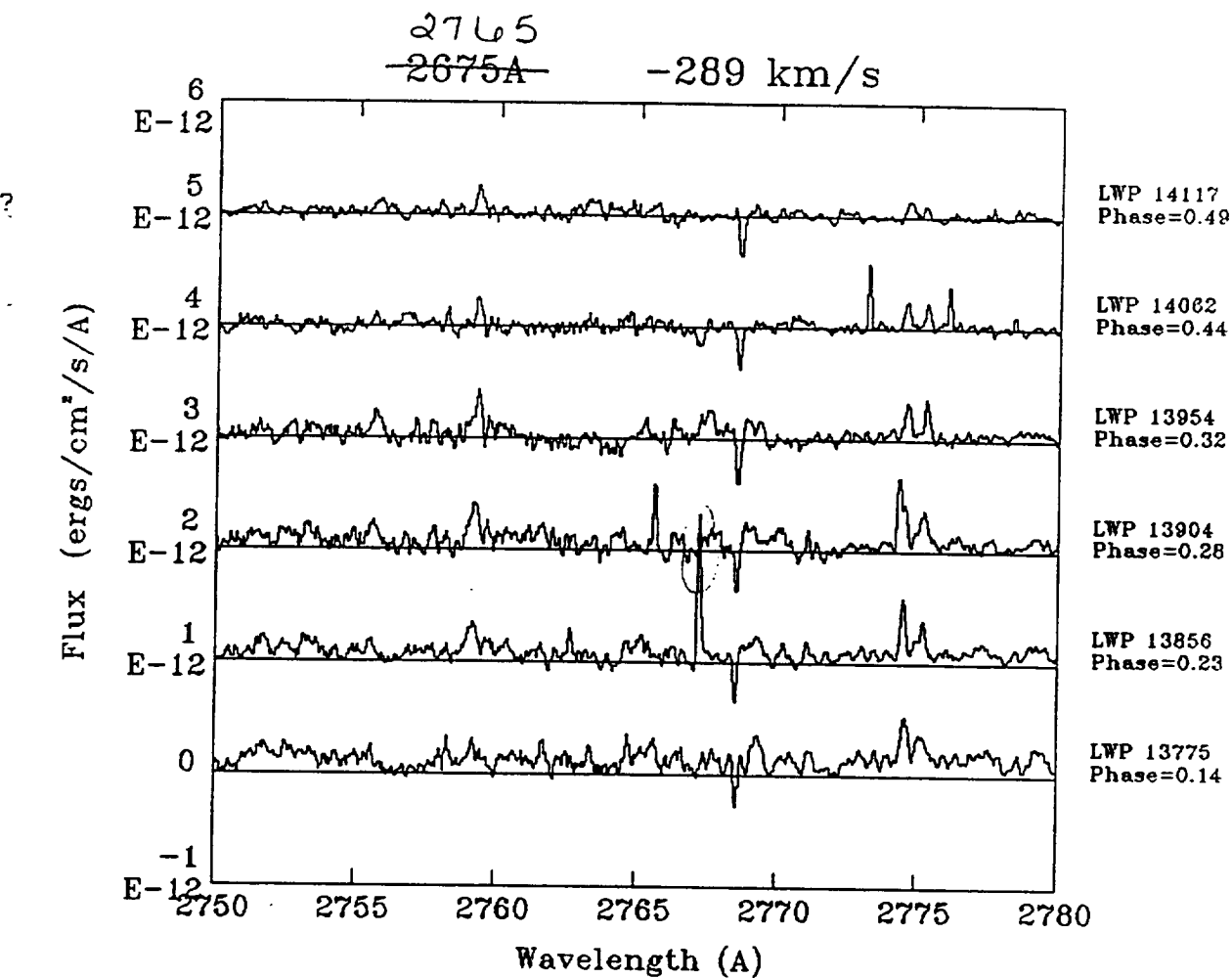
2714.41 Fe II (63)

LWP	F	λ_0	FWHM	RV (km/s)	Notes
14117	-	-	-	-	NADA
14062	4.17×10^{-14}	2714.67	0.100	51.07 (238)	redshifted relative to lab frame
13954	-	-	-	-	atmosph. velocity (relative to S car rest frame)
14062	2.72×10^{-14}	2717.706	0.093	361.6	
13954	4.8×10^{-14}	2717.726	0.088	361.6	
13904	6.16×10^{-14}	2717.668	0.101	358.1	
13856	8.77×10^{-14}	2717.658	0.11	357.8	
13775	2.45×10^{-14}	2717.708	0.126	357.8	

?



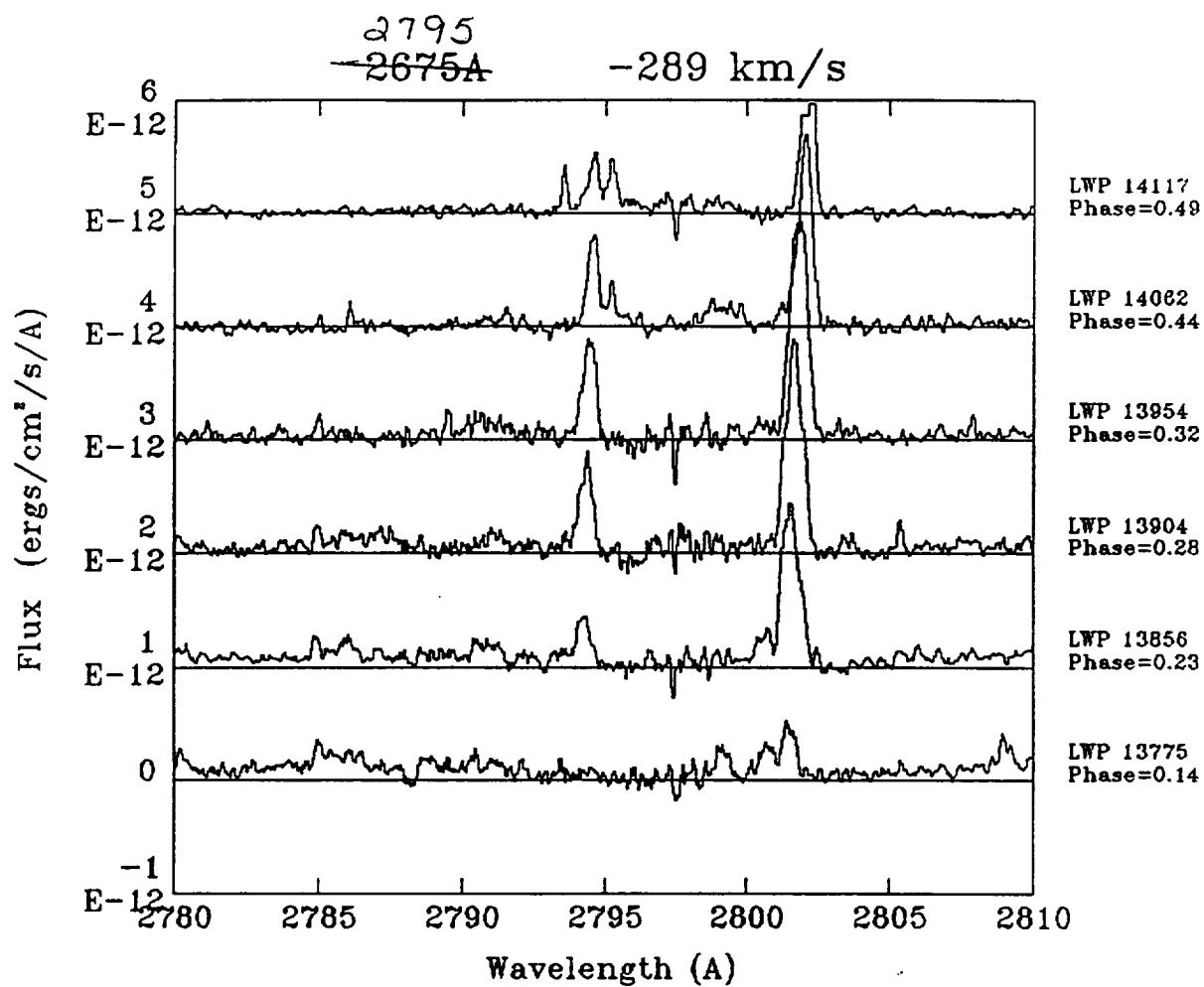
	NET FLUX	CENT. λ	FWHM	R.V.	
2732.44 = Fe II 32					
14117	1.2 × 10 ⁻¹³	2735.04	0.099	279.8	
14062	1.46 × 10 ⁻¹³	2735.125	0.119	287.9	
13954	1.25 × 10 ⁻¹³	2735.076	0.106	287.9	
13904	8.76 × 10 ⁻¹⁴	2735.01	0.077	280.9	
13856	8.81 × 10 ⁻¹⁴	2734.96	0.102	279.1	
13775	4.5 × 10 ⁻¹⁴	2734.86	0.063	266.87	? WEAK



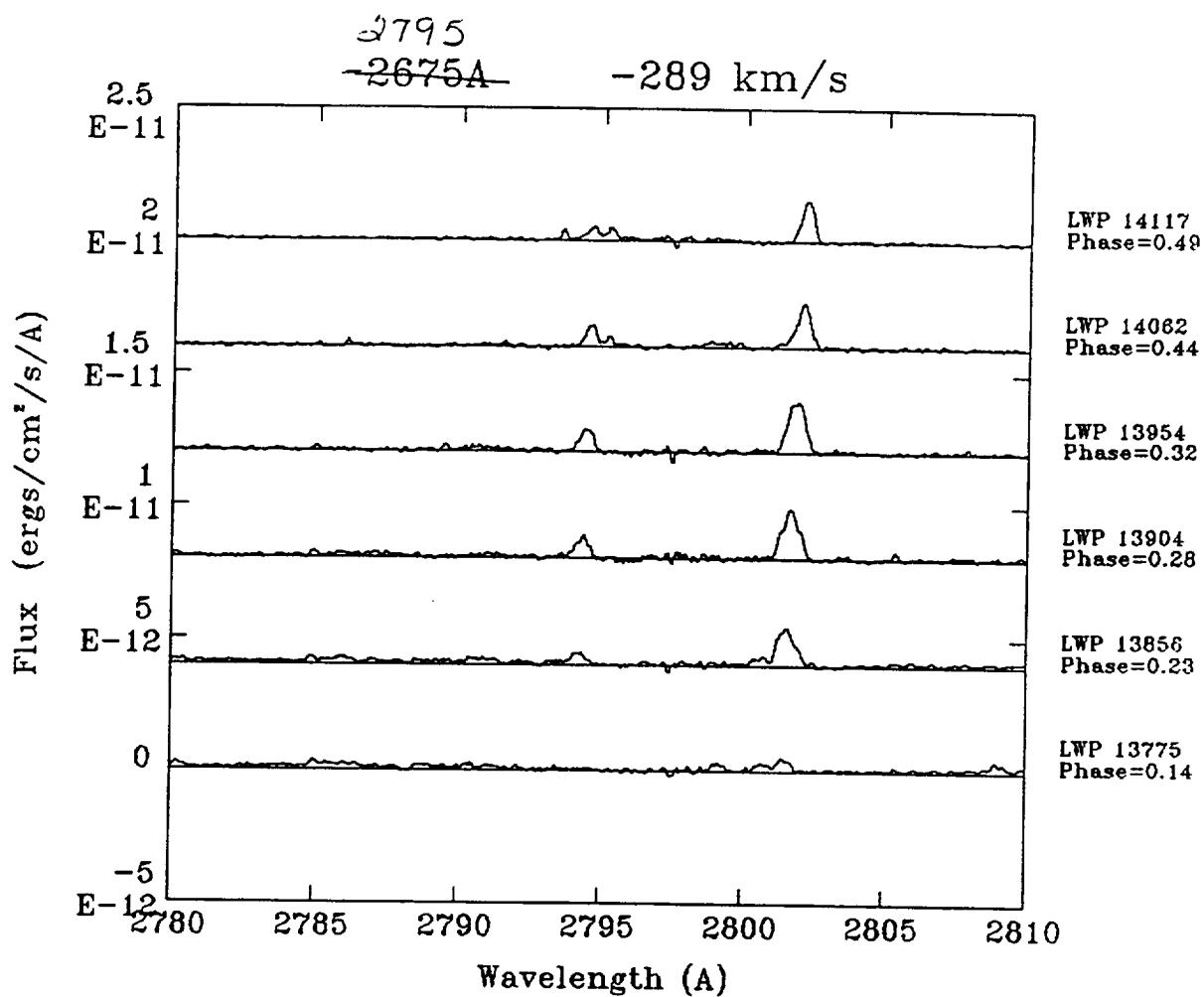
774.732	F	λ_c	FWHM	RV
14117	4.15×10^{-14}	2777.342	0.106	279.2
14062	6.85×10^{-14}	.275	0.108	275.8
13954	9.21×10^{-14}	.323	0.114	280.9
13904	1.6×10^{-13}	.16	0.114	258.5
13856	1.19×10^{-13}	.228	0.083	268.9
13775	1.19×10^{-13}	.314	0.106	279.2

775.338	F	λ_c	FWHM	RV
14117	2.41×10^{-14}	2777.9	0.086	275.8
14062	5.58×10^{-14}	.988	0.098	287.9
13954	7.73×10^{-14}	.494	0.097	284.5
13904	9.76×10^{-14}	.439	0.118	281.0
13856	8.71×10^{-14}	.91	0.105	279.3
13775	1.19×10^{-13}	.904	0.150	272.4

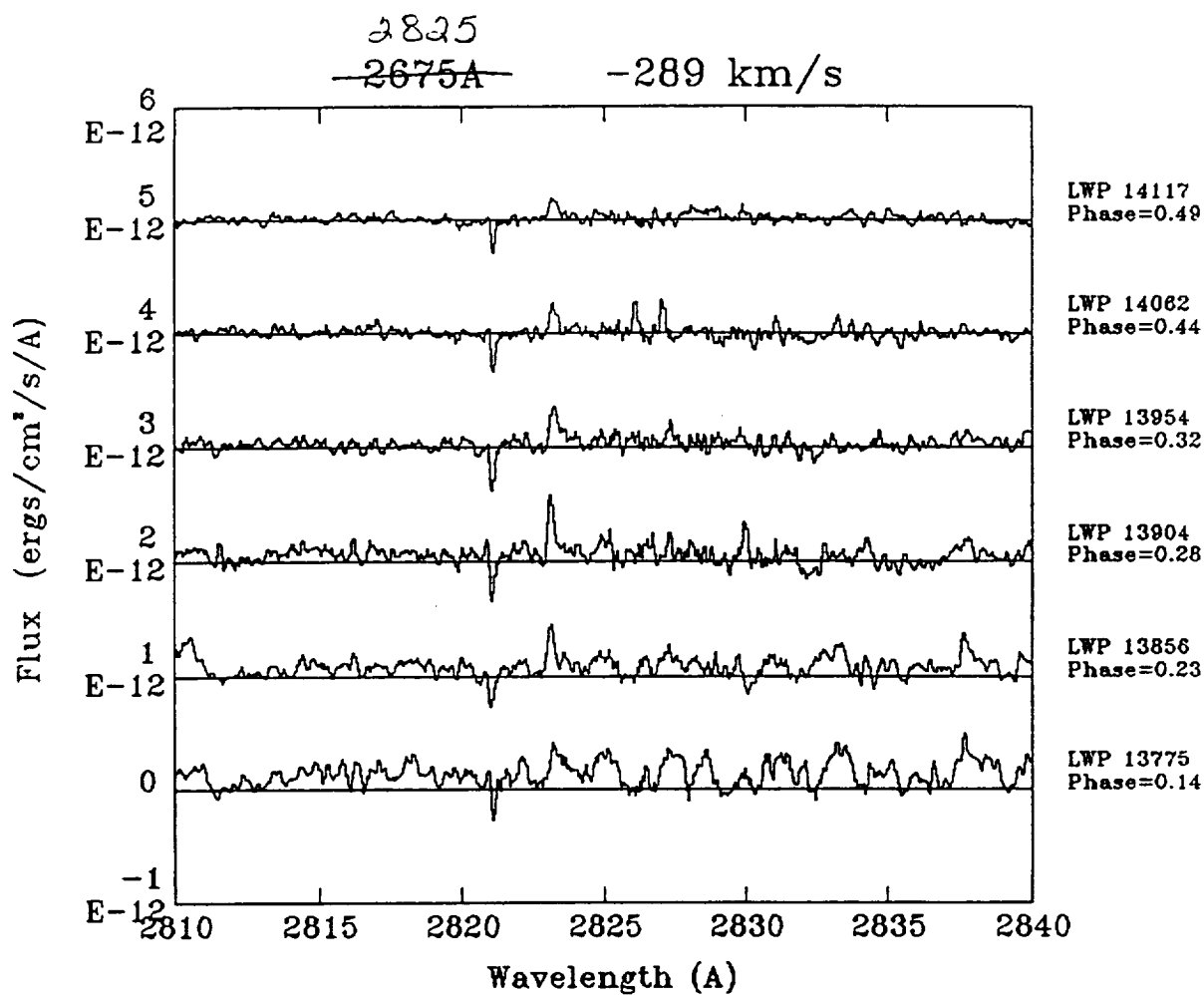
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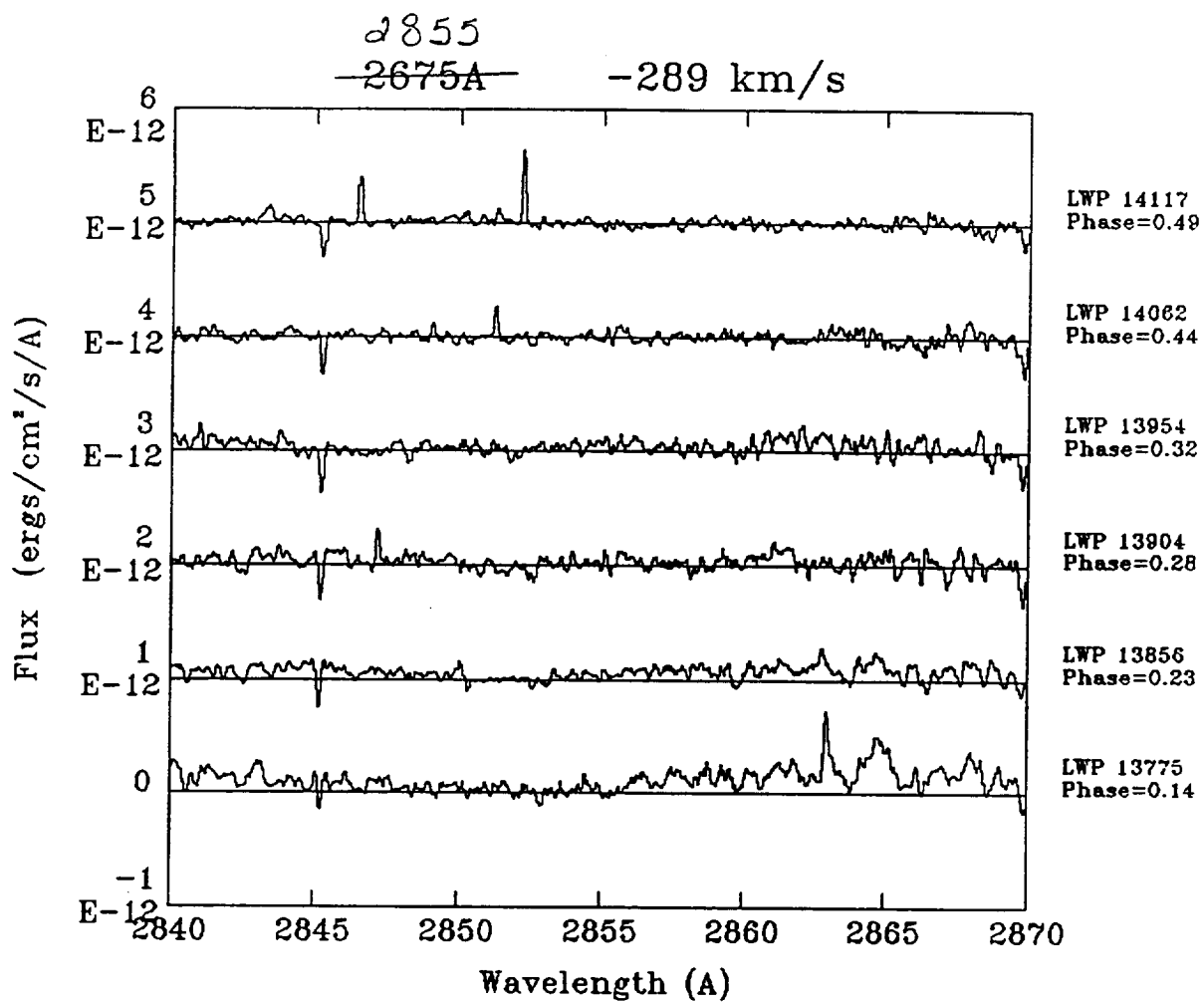


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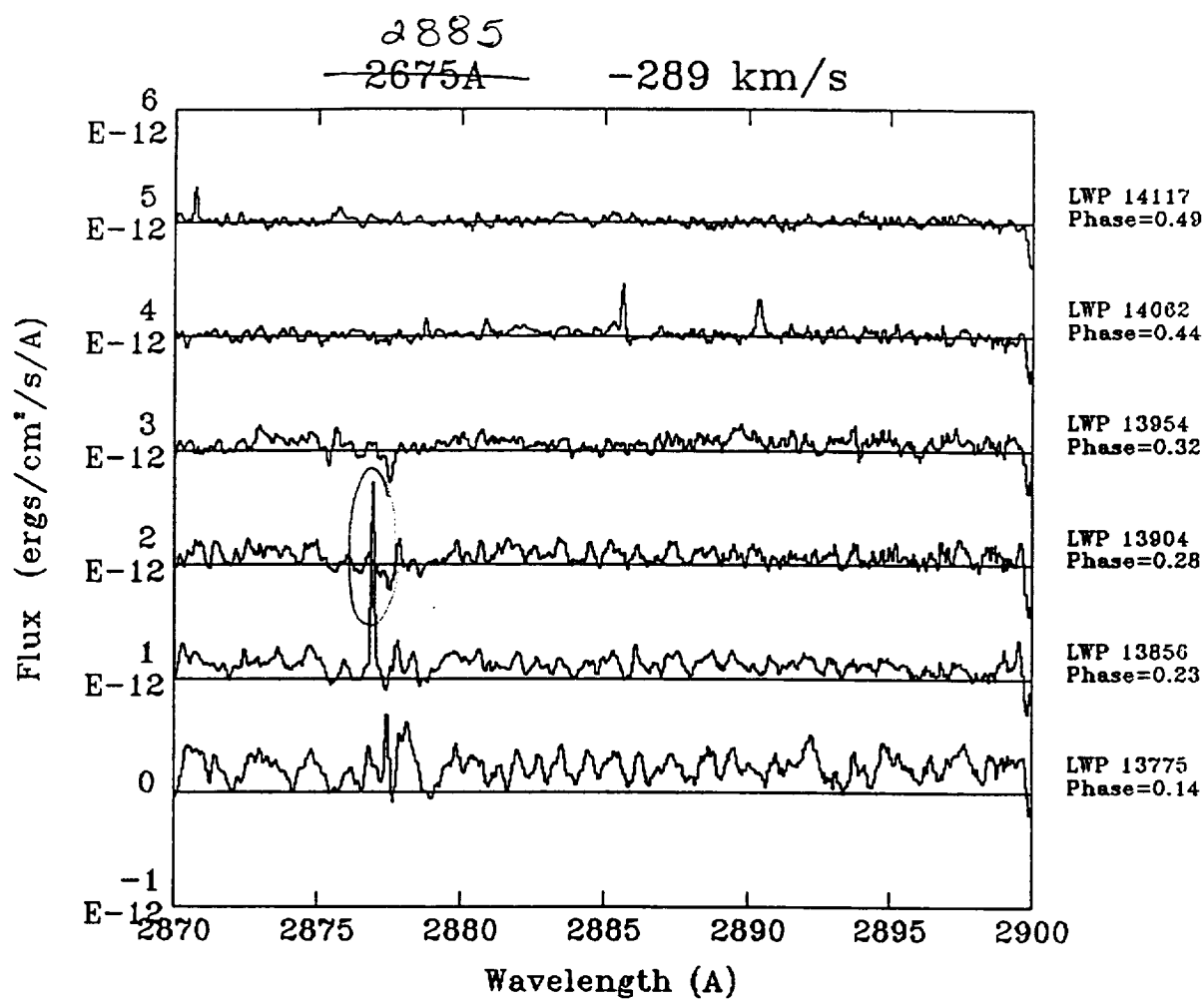


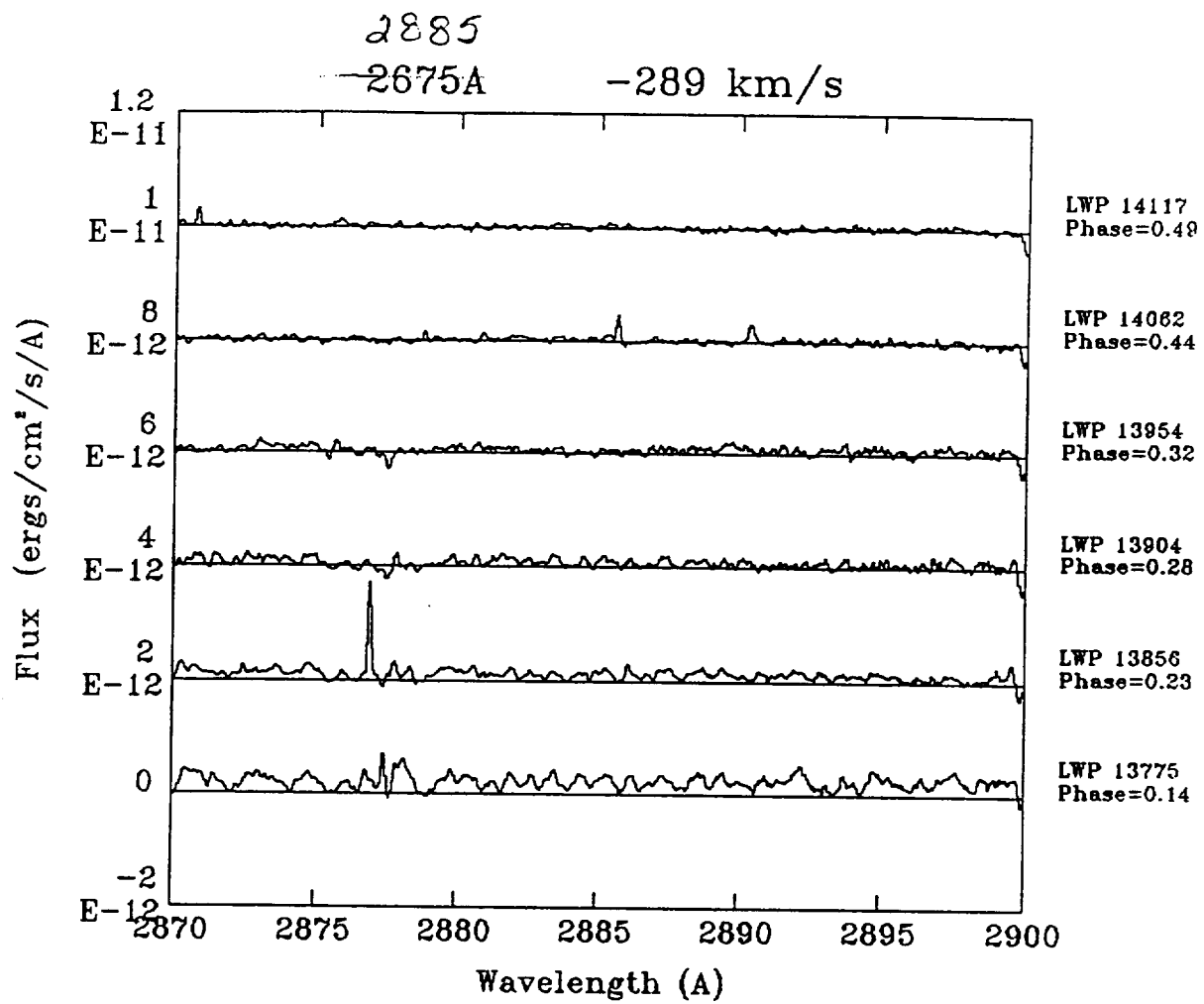
	F_{net}	λ_{central}	FWHM	R_V
For 2823.28 (Fe II 44)				
14117	5.47×10^{-14}	2825.94	0.116	279.77
14062	8.03×10^{-14}	2825.95	0.116	279.77
13954	1.22×10^{-13}	2825.98	0.124	286.54
13904	1.29×10^{-13}	2825.894	0.104	272.95
13856	1.02×10^{-13}	2825.86	0.102	272.98
13775	1.21×10^{-13}	2825.777	0.134	253.15

2

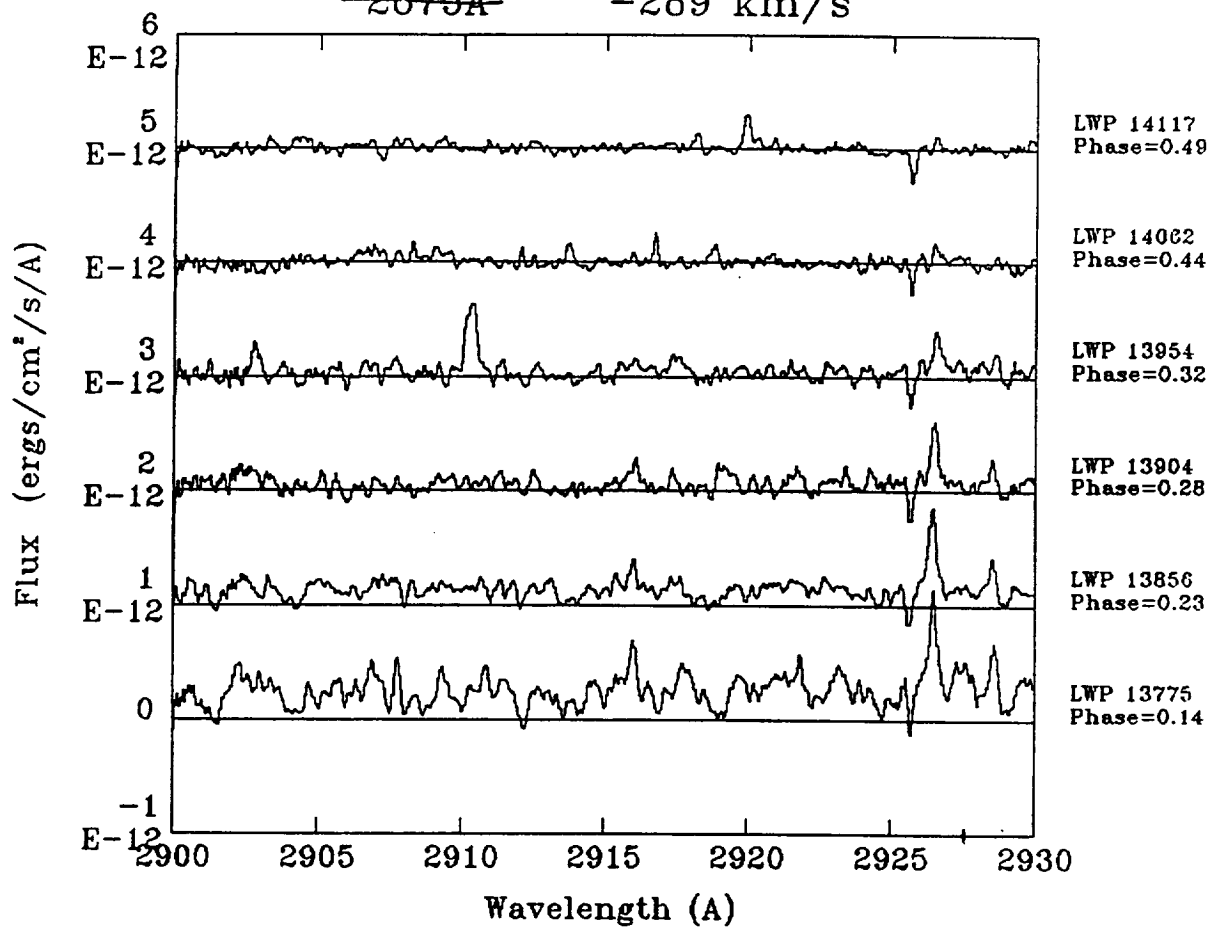


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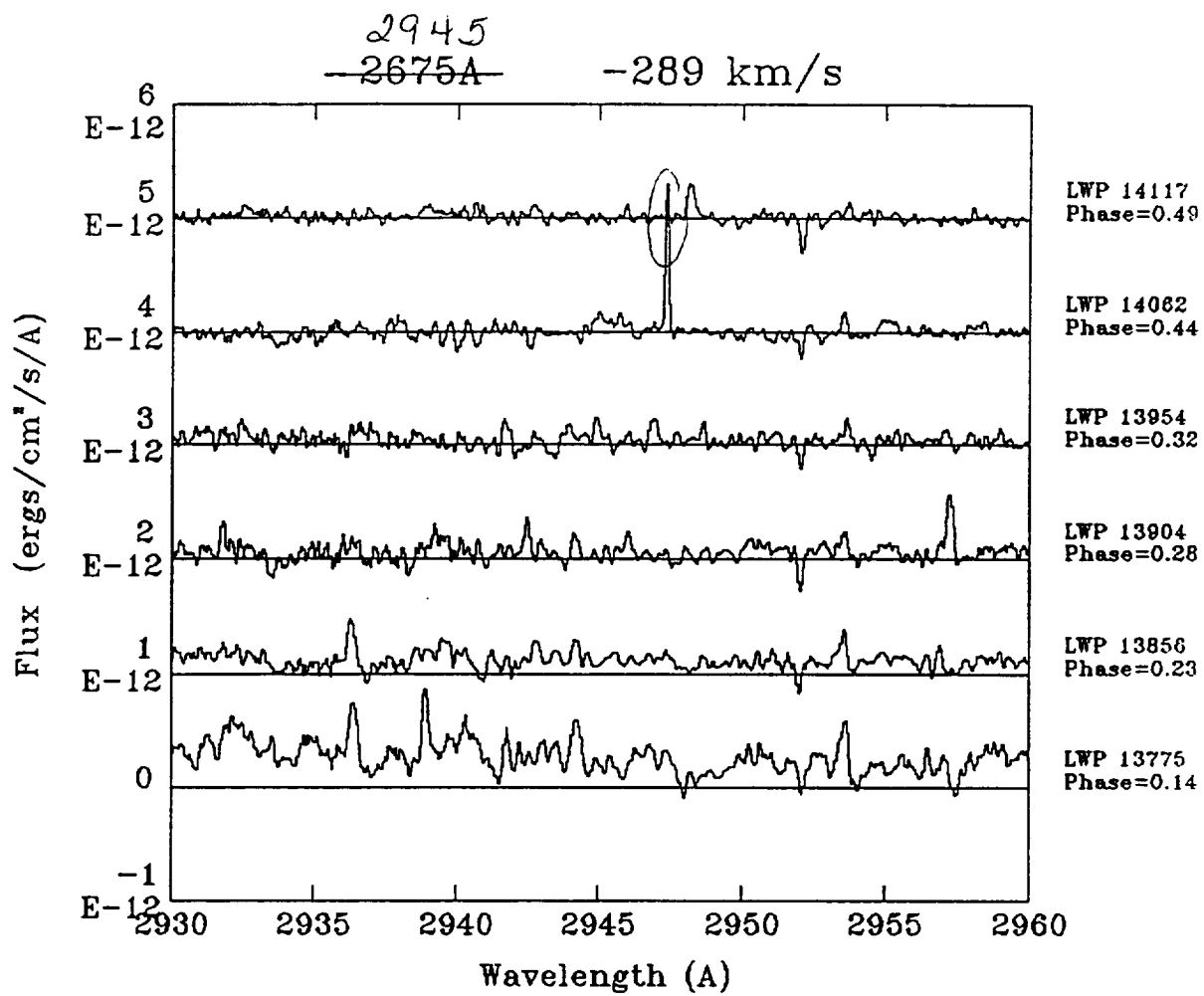




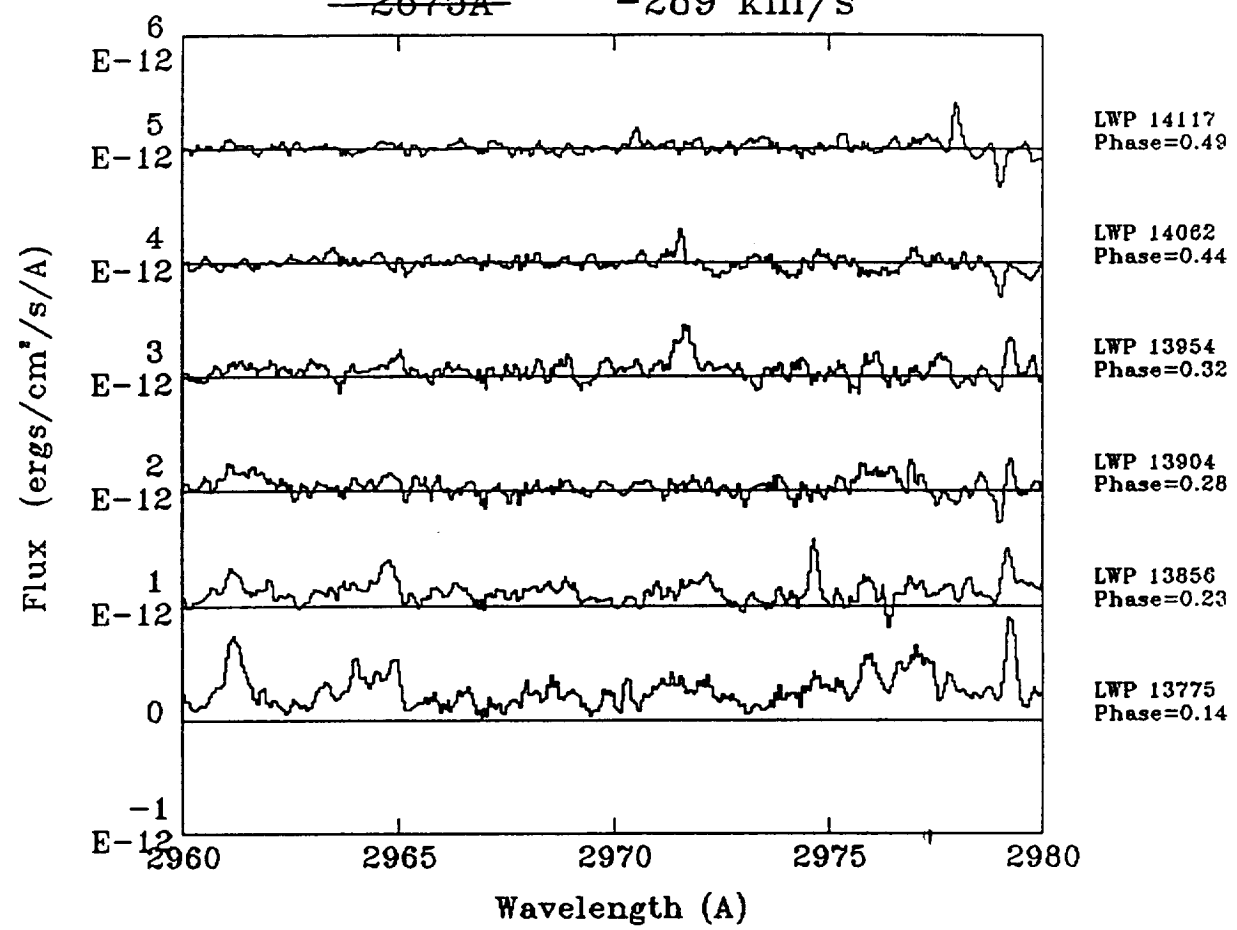
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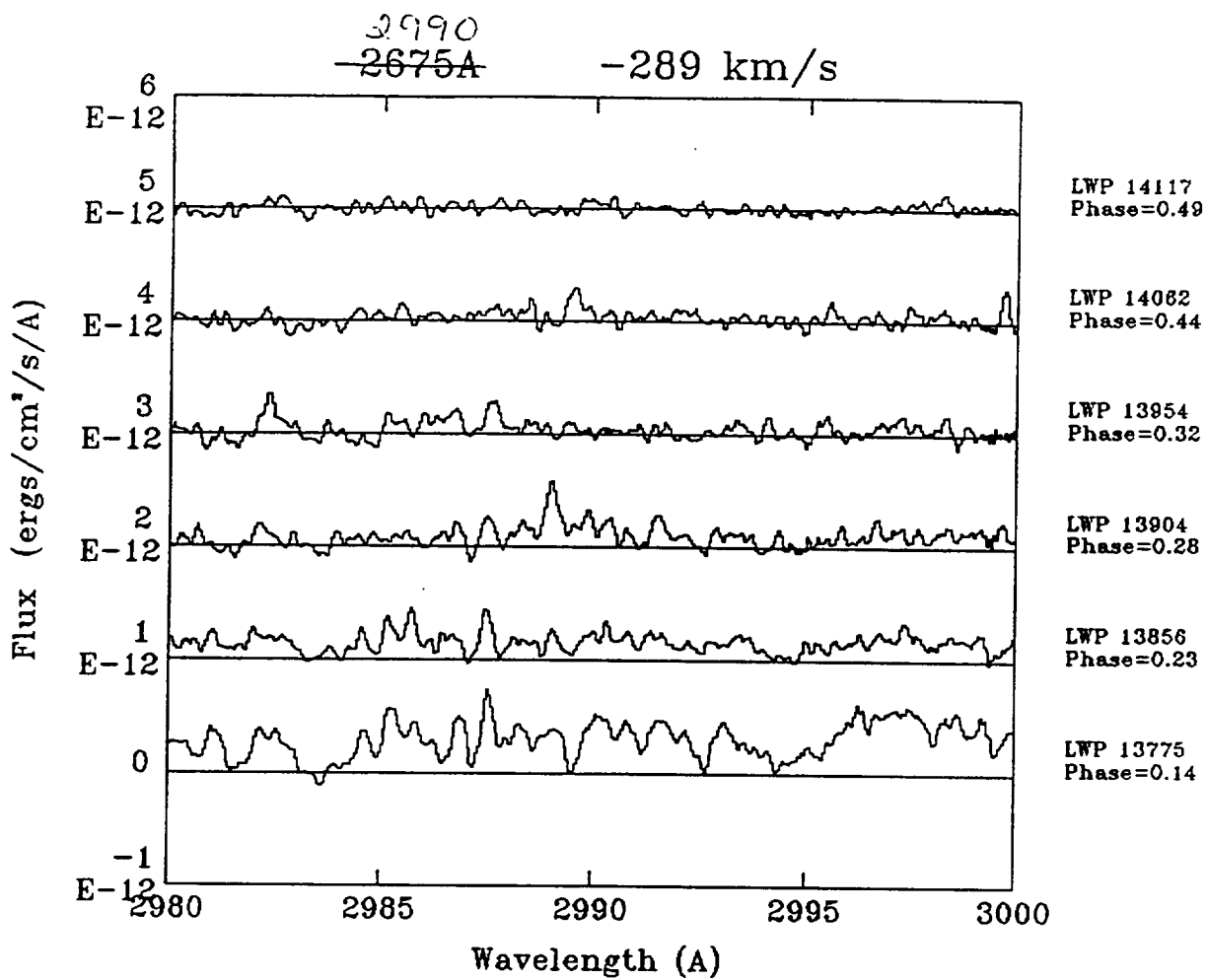
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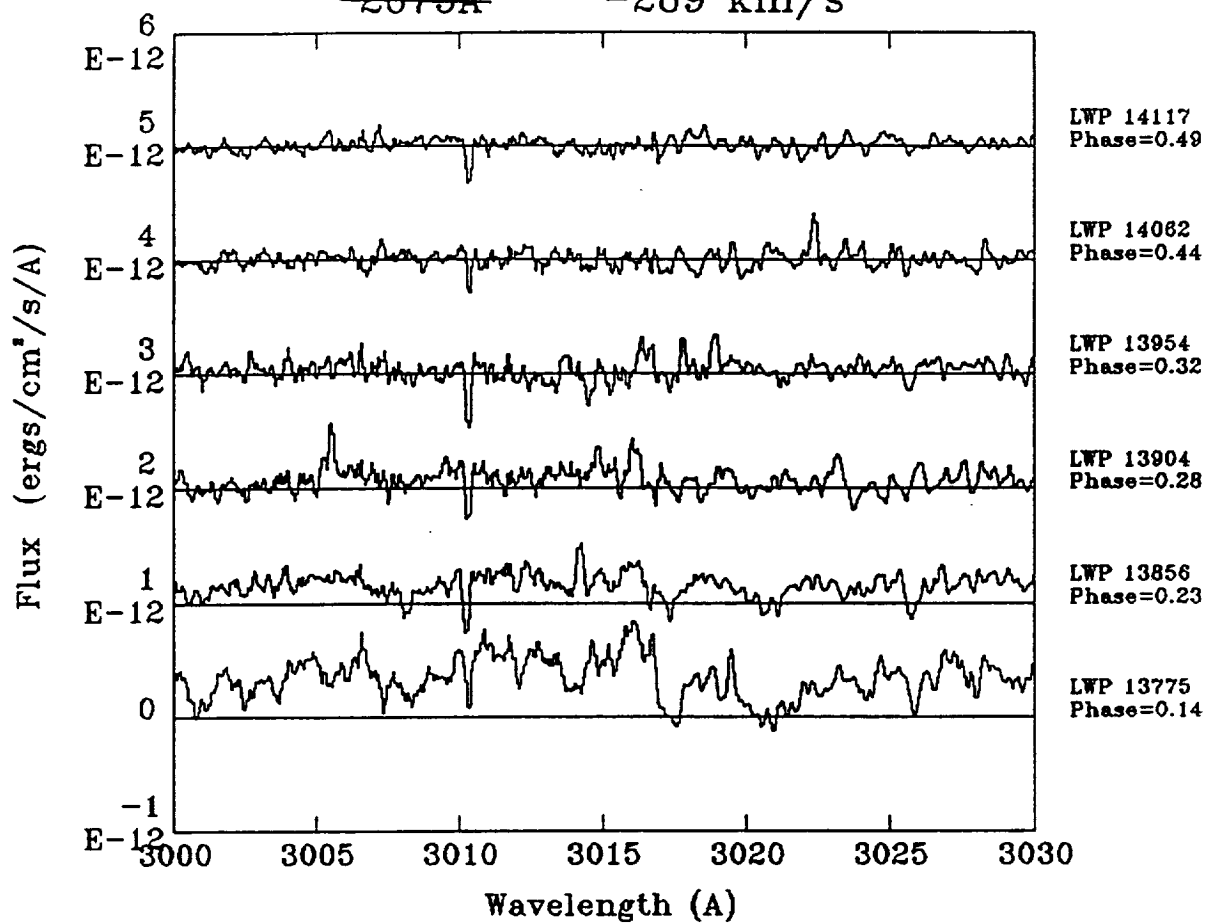
2970
~~2675A~~ -289 km/s



?



3015
~~2675A~~ -289 km/s



LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2344.59	--	--	--			lwp1610.dat flux: 3.85e-13 λ obs: 2344.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2348.66	--	--	--			lwp1610.dat flux: 1.13e-12 λ obs: 2348.66 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp19900.dat flux: 5.24e-13 λ obs: 2348.38 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.29	
2351.12	2348.30		FeII			lwp1610.dat flux: 2.30e-13 λ obs: 2351.12 rv: 360.27 $\Delta \lambda$ abs: 2.82 $\Delta \lambda$ rel: 0.00		
2356.24	--	--	--				lwr11781.dat flux: 2.83e-13 λ obs: 2356.24 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2357.19	2354.89		FeII				lwp19901.dat flux: 6.79e-13 λ obs: 2357.19 rv: 292.64 $\Delta \lambda$ abs: 2.30 $\Delta \lambda$ rel: 0.00	
2368.86	2366.59		FeII		lwp13856.dat flux: 3.62e-13 λ obs: 2368.86 rv: 286.98 $\Delta \lambda$ abs: 2.26 $\Delta \lambda$ rel: 0.00		lwp19878.dat flux: 1.54e-13 λ obs: 2368.58 rv: 251.61 $\Delta \lambda$ abs: 1.98 $\Delta \lambda$ rel: -0.28	
2371.27	2368.60		FeII				lwp19878.dat flux: 1.15e-13 λ obs: 2371.27 rv: 338.81 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.00	
2371.88	2370.50		FeII				lwp19878.dat flux: 5.65e-14 λ obs: 2371.88 rv: 174.63 $\Delta \lambda$ abs: 1.38 $\Delta \lambda$ rel: 0.00	
2374.45	--	--	--				lwp19878.dat flux: 1.53e-13 λ obs: 2374.45 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2379.30	--	--			lwp12033.dat flux: 2.21e-13 λ obs: 2378.92 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 1.34e-13 λ obs: 2379.30 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.38	lwp19888.dat flux: 1.52e-13 λ obs: 2379.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.67
2380.01	--	--			lwp12033.dat flux: 1.98e-13 λ obs: 2380.01 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2390.91	2388.63	FeII					lwp19901.dat flux: 4.25e-13 λ obs: 2390.91 rv: 286.64 $\Delta \lambda$ abs: 2.28 $\Delta \lambda$ rel: 0.00
2392.23	--	--					lwp19910.dat flux: 3.95e-13 λ obs: 2392.23 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwr11781.dat flux: 9.18e-14 λ obs: 2392.01 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.22
2393.57	2391.48	FeII			lwp6906.dat flux: 2.01e-13 λ obs: 2393.57 rv: 262.68 $\Delta \lambda$ abs: 2.09 $\Delta \lambda$ rel: 0.00		
2395.01	--	--	lwp13775.dat flux: 4.17e-13 λ obs: 2395.01 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				lwr11781.dat flux: 1.08e-13 λ obs: 2394.94 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.07 lwr11781.dat flux: 2.21e-13 λ obs: 2395.32 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.31
2395.43	--	--	lwp5842.dat flux: 3.65e-13 λ obs: 2395.43 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				lwr11781.dat flux: 2.21e-13 λ obs: 2395.32 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.10

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2396.26	--	--					lwp19900.dat flux: 5.34e-13 λ obs: 2396.26 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2397.00	2395.42	FeII	lwp5842.dat flux: 2.27e-13 λ obs: 2397.00 rv: 198.01 $\Delta \lambda$ abs: 1.58 $\Delta \lambda$ rel: 0.00				
2400.97	2399.23	FeII				lwp7874.dat flux: 1.65e-13 λ obs: 2400.97 rv: 217.08 $\Delta \lambda$ abs: 1.74 $\Delta \lambda$ rel: 0.00	
2404.42	2402.60	FeII				lwp7874.dat flux: 1.14e-13 λ obs: 2404.42 rv: 226.74 $\Delta \lambda$ abs: 1.82 $\Delta \lambda$ rel: 0.00	
2405.80	2402.60	FeII				lwp14062.dat flux: 6.60e-13 λ obs: 2405.80 rv: 399.32 $\Delta \lambda$ abs: 3.20 $\Delta \lambda$ rel: 0.00	
2414.52	2412.25	NiII					lwr11781.dat flux: 1.06e-13 λ obs: 2414.52 rv: 282.80 $\Delta \lambda$ abs: 2.27 $\Delta \lambda$ rel: 0.00
2417.41	2415.06	FeII					lwp19879.dat flux: 8.92e-13 λ obs: 2417.41 rv: 291.05 $\Delta \lambda$ abs: 2.34 $\Delta \lambda$ rel: 0.00
2418.12	2416.14	NiII					lwr11781.dat flux: 4.26e-13 λ obs: 2418.12 rv: 245.97 $\Delta \lambda$ abs: 1.98 $\Delta \lambda$ rel: 0.00
2419.16	2416.14	NiII					lwr11781.dat flux: 1.96e-13 λ obs: 2419.16 rv: 375.98 $\Delta \lambda$ abs: 3.03 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2419.60	--	--					lwr11781.dat flux: 1.96e-13 λ obs: 2419.60 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2423.89	--	--					
2426.08	--	--			lwp12008.dat flux: 1.33e-13 λ obs: 2426.08 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2437.88	2434.95	FeII					lwp19878.dat flux: 4.19e-14 λ obs: 2437.88 rv: 360.74 $\Delta \lambda$ abs: 2.93 $\Delta \lambda$ rel: 0.00 lwr11781.dat flux: 2.17e-13 λ obs: 2437.86 rv: 357.92 $\Delta \lambda$ abs: 2.91 $\Delta \lambda$ rel: -0.02
2443.66	--	--					lwr11781.dat flux: 1.73e-13 λ obs: 2443.66 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2445.41	--	--					lwr11781.dat flux: 1.37e-13 λ obs: 2445.41 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2450.39	2448.11	FeII	lwp13775.dat flux: 1.84e-13 λ obs: 2450.39 rv: 278.77 $\Delta \lambda$ abs: 2.27 $\Delta \lambda$ rel: 0.00				lwr11781.dat flux: 6.95e-13 λ obs: 2450.27 rv: 264.32 $\Delta \lambda$ abs: 2.16 $\Delta \lambda$ rel: -0.12
2452.30	2449.73	FeII			lwp1610.dat flux: 6.70e-13 λ obs: 2452.30 rv: 314.86 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: 0.00		lwp19878.dat flux: 3.83e-14 λ obs: 2452.22 rv: 304.93 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: -0.08

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2454.75	--	--				lwp6906.dat flux: 3.82e-13 λ obs: 2454.75 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2457.13	--	--						lwr11781.dat flux: 1.29e-13 λ obs: 2457.13 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2463.85	--	--						lwr11781.dat flux: 1.09e-13 λ obs: 2463.85 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2464.85	--	--						
2469.46	--	--						lwp19900.dat flux: 2.29e-13 λ obs: 2469.46 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2470.60	2468.18		FeII			lwp14062.dat flux: 1.17e-13 λ obs: 2470.60 rv: 295.11 $\Delta \lambda$ abs: 2.43 $\Delta \lambda$ rel: 0.00	lwr11781.dat flux: 1.04e-13 λ obs: 2470.52 rv: 284.91 $\Delta \lambda$ abs: 2.34 $\Delta \lambda$ rel: -0.08	
2472.24	--	--						lwr11781.dat flux: 1.33e-13 λ obs: 2472.24 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2475.75	--	--						lwp19902.dat flux: 1.32e-13 λ obs: 2475.75 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2479.64	2476.68		FeII					lwp19878.dat flux: 7.18e-14 λ obs: 2479.64 rv: 359.04 $\Delta \lambda$ abs: 2.96 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2483.38	--	--	lwp13775.dat flux: 1.91e-13 λ obs: 2483.09 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.81e-13 λ obs: 2483.14 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.05	lwp6906.dat flux: 1.61e-13 λ obs: 2483.38 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.29	lwp7874.dat flux: 5.26e-13 λ obs: 2483.20 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.11	lwp12197.dat flux: 4.81e-12 λ obs: 2483.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26
			lwp13775.dat flux: 1.33e-13 λ obs: 2483.31 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.22	lwp13856.dat flux: 7.49e-14 λ obs: 2483.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26	lwp12008.dat flux: 3.71e-13 λ obs: 2483.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.30	lwp12172.dat flux: 2.84e-13 λ obs: 2483.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26	lwp14117.dat flux: 2.66e-13 λ obs: 2483.25 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.16
					lwp12033.dat flux: 3.46e-13 λ obs: 2483.40 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.31	lwp14062.dat flux: 2.51e-13 λ obs: 2483.27 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.18	lwp19878.dat flux: 2.59e-13 λ obs: 2483.36 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.27
					lwp12038.dat flux: 5.32e-13 λ obs: 2483.40 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.31		lwp19879.dat flux: 2.91e-13 λ obs: 2483.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.25
					lwp13954.dat flux: 1.93e-13 λ obs: 2483.24 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.15		lwp19888.dat flux: 1.75e-13 λ obs: 2483.33 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.24
							lwp19889.dat flux: 2.29e-13 λ obs: 2483.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26
							lwp19900.dat flux: 1.38e-13 λ obs: 2483.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.30
							lwp19901.dat flux: 1.04e-13 λ obs: 2483.33 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.24
							lwp19902.dat flux: 1.70e-13 λ obs: 2483.37 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.28

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2483.38	--	--	--					lwp19910.dat flux: 1.89e-13 λ obs: 2483.33 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.24 lwp19911.dat flux: 2.48e-13 λ obs: 2483.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26
2484.15	2482.12		FeII			lwp12033.dat flux: 4.00e-14 λ obs: 2484.15 rv: 245.83 $\Delta \lambda$ abs: 2.03 $\Delta \lambda$ rel: 0.00		
2493.96	2491.70		FeII			lwp12033.dat flux: 2.57e-13 λ obs: 2493.96 rv: 271.87 $\Delta \lambda$ abs: 2.26 $\Delta \lambda$ rel: 0.00		
2495.66	2493.29		FeII					lwr11781.dat flux: 1.80e-13 λ obs: 2495.66 rv: 284.21 $\Delta \lambda$ abs: 2.36 $\Delta \lambda$ rel: 0.00
2501.14	2497.82		FeII			lwp6906.dat flux: 1.62e-13 λ obs: 2501.14 rv: 398.73 $\Delta \lambda$ abs: 3.32 $\Delta \lambda$ rel: 0.00		
2512.94	2510.53		FeII					lwp12197.dat flux: 5.62e-13 λ obs: 2512.94 rv: 287.74 $\Delta \lambda$ abs: 2.41 $\Delta \lambda$ rel: 0.00
2525.59	--	--	--	lwp13775.dat flux: 7.29e-14 λ obs: 2525.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2527.87	--	--	--					lwp19888.dat flux: 7.20e-14 λ obs: 2527.87 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2528.53	2526.84	FeII					lwp19900.dat flux: 1.86e-13 λ obs: 2528.53 rv: 201.36 $\Delta \lambda$ abs: 1.70 $\Delta \lambda$ rel: 0.00
2538.92	2537.37	FeII					lwp19902.dat flux: 1.38e-13 λ obs: 2538.92 rv: 183.99 $\Delta \lambda$ abs: 1.56 $\Delta \lambda$ rel: 0.00
2546.37	2544.81	FeII			lwp12044.dat flux: 1.02e-13 λ obs: 2546.37 rv: 183.54 $\Delta \lambda$ abs: 1.56 $\Delta \lambda$ rel: 0.00		
2551.19	2548.59	FeII	lwp5842.dat flux: 1.97e-13 λ obs: 2551.19 rv: 306.03 $\Delta \lambda$ abs: 2.60 $\Delta \lambda$ rel: 0.00				
2554.06	2550.57	FeII					
2554.95	--	--			lwp12033.dat flux: 1.58e-13 λ obs: 2554.95 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp12038.dat flux: 2.65e-13 λ obs: 2554.92 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.03		
2556.71	--	--				lwp12172.dat flux: 2.30e-13 λ obs: 2556.71 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2557.46	--	--					lwr11781.dat flux: 2.13e-13 λ obs: 2557.46 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2560.58	--	--					lwp7874.dat flux: 4.04e-14 λ obs: 2560.58 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2565.29	2563.47		FeII	lwp13775.dat flux: 5.41e-14 λ obs: 2565.58 rv: 247.29 $\Delta \lambda$ abs: 2.11 $\Delta \lambda$ rel: 0.00			lwp7874.dat flux: 9.75e-14 λ obs: 2565.29 rv: 213.00 $\Delta \lambda$ abs: 1.82 $\Delta \lambda$ rel: -0.29	
2567.21	--	--				lwp1610.dat flux: 9.57e-14 λ obs: 2567.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2570.97	--	--					lwr11781.dat flux: 3.37e-13 λ obs: 2570.97 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2572.99	--	--			lwp13856.dat flux: 1.19e-13 λ obs: 2572.99 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			
2575.46	--	--					lwp19888.dat flux: 6.90e-14 λ obs: 2575.46 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwr11781.dat flux: 1.67e-13 λ obs: 2575.18 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.28 lwr11781.dat flux: 8.50e-14 λ obs: 2575.85 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.39	
2578.36	--	--				lwp12038.dat flux: 3.74e-13 λ obs: 2578.36 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2578.86	--	--					
2579.73	2577.92	FeII	lwp13775.dat flux: 1.52e-13 λ obs: 2579.73 rv: 209.82 $\Delta \lambda$ abs: 1.80 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.30e-13 λ obs: 2579.90 rv: 230.16 $\Delta \lambda$ abs: 1.98 $\Delta \lambda$ rel: 0.17			
2580.91	2577.92	FeII	lwp13775.dat flux: 5.45e-14 λ obs: 2580.91 rv: 347.36 $\Delta \lambda$ abs: 2.98 $\Delta \lambda$ rel: 0.00				
2582.61	2579.41	FeII					lwp19900.dat flux: 1.79e-13 λ obs: 2582.61 rv: 373.11 $\Delta \lambda$ abs: 3.21 $\Delta \lambda$ rel: 0.00
2585.38	2582.58	FeII					lwp19888.dat flux: 6.92e-14 λ obs: 2585.38 rv: 324.44 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.00 lwp19911.dat flux: 7.24e-14 λ obs: 2585.30 rv: 315.85 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: -0.07
2588.63	2585.88	FeII			lwp1610.dat flux: 3.94e-13 λ obs: 2588.63 rv: 319.98 $\Delta \lambda$ abs: 2.76 $\Delta \lambda$ rel: 0.00		lwr11781.dat flux: 1.30e-13 λ obs: 2588.88 rv: 348.64 $\Delta \lambda$ abs: 3.01 $\Delta \lambda$ rel: 0.25
2600.27	2598.03	FeII				lwp14062.dat flux: 7.83e-14 λ obs: 2600.27 rv: 258.66 $\Delta \lambda$ abs: 2.24 $\Delta \lambda$ rel: 0.00	
2607.91	2605.70	MnII			lwp13904.dat flux: 1.18e-13 λ obs: 2607.91 rv: 254.89 $\Delta \lambda$ abs: 2.21 $\Delta \lambda$ rel: 0.00		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2613.60	2611.07	FeII					lwp19888.dat flux: 8.44e-14 λ obs: 2613.60 rv: 290.80 $\Delta \lambda$ abs: 2.53 $\Delta \lambda$ rel: 0.00
2614.50	2611.87	FeII	lwp13775.dat flux: 1.81e-13 λ obs: 2614.50 rv: 302.18 $\Delta \lambda$ abs: 2.63 $\Delta \lambda$ rel: 0.00				
2620.12	2617.62	FeII					lwp19879.dat flux: 3.36e-14 λ obs: 2620.12 rv: 286.30 $\Delta \lambda$ abs: 2.50 $\Delta \lambda$ rel: 0.00 lwp19910.dat flux: 2.45e-14 λ obs: 2620.04 rv: 278.04 $\Delta \lambda$ abs: 2.43 $\Delta \lambda$ rel: -0.07
2621.17	2619.07	FeII					lwp19888.dat flux: 2.71e-14 λ obs: 2621.17 rv: 240.08 $\Delta \lambda$ abs: 2.10 $\Delta \lambda$ rel: 0.00
2622.49	2620.41	FeII	lwp13775.dat flux: 2.70e-13 λ obs: 2622.49 rv: 237.69 $\Delta \lambda$ abs: 2.08 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 7.46e-14 λ obs: 2622.77 rv: 270.09 $\Delta \lambda$ abs: 2.36 $\Delta \lambda$ rel: 0.28			
2622.91	2620.41	FeII		lwp13856.dat flux: 7.46e-14 λ obs: 2622.77 rv: 270.09 $\Delta \lambda$ abs: 2.36 $\Delta \lambda$ rel: 0.00			lwp19878.dat flux: 3.77e-14 λ obs: 2622.91 rv: 285.99 $\Delta \lambda$ abs: 2.50 $\Delta \lambda$ rel: 0.14 lwp19888.dat flux: 3.59e-14 λ obs: 2622.93 rv: 288.98 $\Delta \lambda$ abs: 2.52 $\Delta \lambda$ rel: 0.17
2624.44	2621.67	FeII					lwp19911.dat flux: 6.39e-14 λ obs: 2624.44 rv: 317.34 $\Delta \lambda$ abs: 2.77 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2625.22	2621.67	FeII				lwp14062.dat flux: 2.00e-13 λ obs: 2625.22 rv: 405.90 $\Delta \lambda$ abs: 3.55 $\Delta \lambda$ rel: 0.00	
2628.18	2625.67	FeII		lwp13856.dat flux: 1.41e-13 λ obs: 2627.98 rv: 263.83 $\Delta \lambda$ abs: 2.31 $\Delta \lambda$ rel: 0.00	lwp1610.dat flux: 1.72e-13 λ obs: 2628.18 rv: 287.37 $\Delta \lambda$ abs: 2.52 $\Delta \lambda$ rel: 0.21	lwp7874.dat flux: 1.54e-13 λ obs: 2628.09 rv: 276.74 $\Delta \lambda$ abs: 2.42 $\Delta \lambda$ rel: 0.11	lwp14117.dat flux: 6.93e-14 λ obs: 2628.05 rv: 272.28 $\Delta \lambda$ abs: 2.38 $\Delta \lambda$ rel: 0.07
				lwp6906.dat flux: 1.29e-13 λ obs: 2628.07 rv: 275.01 $\Delta \lambda$ abs: 2.41 $\Delta \lambda$ rel: 0.10	lwp14062.dat flux: 6.20e-14 λ obs: 2628.06 rv: 273.87 $\Delta \lambda$ abs: 2.40 $\Delta \lambda$ rel: 0.09	lwp19878.dat flux: 8.48e-14 λ obs: 2628.12 rv: 280.17 $\Delta \lambda$ abs: 2.45 $\Delta \lambda$ rel: 0.14	
				lwp12008.dat flux: 4.91e-14 λ obs: 2628.10 rv: 278.11 $\Delta \lambda$ abs: 2.43 $\Delta \lambda$ rel: 0.13		lwp19879.dat flux: 8.38e-14 λ obs: 2628.18 rv: 287.01 $\Delta \lambda$ abs: 2.51 $\Delta \lambda$ rel: 0.20	
				lwp12008.dat flux: 4.61e-14 λ obs: 2628.50 rv: 323.36 $\Delta \lambda$ abs: 2.83 $\Delta \lambda$ rel: 0.52		lwp19888.dat flux: 9.20e-14 λ obs: 2628.14 rv: 282.91 $\Delta \lambda$ abs: 2.48 $\Delta \lambda$ rel: 0.17	
				lwp12033.dat flux: 6.14e-14 λ obs: 2628.05 rv: 271.83 $\Delta \lambda$ abs: 2.38 $\Delta \lambda$ rel: 0.07		lwp19889.dat flux: 7.68e-14 λ obs: 2628.42 rv: 314.54 $\Delta \lambda$ abs: 2.75 $\Delta \lambda$ rel: 0.44	
				lwp12038.dat flux: 7.83e-14 λ obs: 2628.08 rv: 275.13 $\Delta \lambda$ abs: 2.41 $\Delta \lambda$ rel: 0.10		lwp19900.dat flux: 8.14e-14 λ obs: 2628.08 rv: 275.71 $\Delta \lambda$ abs: 2.41 $\Delta \lambda$ rel: 0.10	
				lwp12044.dat flux: 7.56e-14 λ obs: 2628.07 rv: 274.79 $\Delta \lambda$ abs: 2.41 $\Delta \lambda$ rel: 0.10		lwp19901.dat flux: 1.09e-13 λ obs: 2628.30 rv: 301.18 $\Delta \lambda$ abs: 2.64 $\Delta \lambda$ rel: 0.33	
				lwp13904.dat flux: 1.39e-13 λ obs: 2627.97 rv: 263.49 $\Delta \lambda$ abs: 2.31 $\Delta \lambda$ rel: 0.00		lwp19902.dat flux: 8.01e-14 λ obs: 2627.91 rv: 256.27 $\Delta \lambda$ abs: 2.24 $\Delta \lambda$ rel: -0.07	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2628.18	2625.67	FeII			lwp13954.dat flux: 1.62e-13 λ obs: 2628.03 rv: 270.33 $\Delta \lambda$ abs: 2.37 $\Delta \lambda$ rel: 0.06		lwp19910.dat flux: 8.91e-14 λ obs: 2628.10 rv: 278.33 $\Delta \lambda$ abs: 2.44 $\Delta \lambda$ rel: 0.13 lwp19911.dat flux: 8.92e-14 λ obs: 2628.42 rv: 314.90 $\Delta \lambda$ abs: 2.76 $\Delta \lambda$ rel: 0.45 lwr11781.dat flux: 1.52e-13 λ obs: 2628.25 rv: 295.57 $\Delta \lambda$ abs: 2.59 $\Delta \lambda$ rel: 0.28
2630.70	2628.29	FeII					lwp14117.dat flux: 3.34e-14 λ obs: 2630.70 rv: 274.18 $\Delta \lambda$ abs: 2.40 $\Delta \lambda$ rel: 0.00
2632.45	--	--				lwp14062.dat flux: 5.97e-14 λ obs: 2632.45 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2633.97	2631.05	FeII					
2637.06	--	--					lwr11781.dat flux: 1.16e-13 λ obs: 2637.06 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2637.81	--	--					lwp12197.dat flux: 4.41e-13 λ obs: 2637.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2638.38	--	--					lwp14117.dat flux: 1.31e-13 λ obs: 2638.38 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2638.96	--	--				lwp14062.dat flux: 8.34e-14 λ obs: 2638.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwr11781.dat flux: 1.28e-13 λ obs: 2638.79 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.17
2640.22	--	--			lwp12008.dat flux: 2.87e-13 λ obs: 2640.22 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp14062.dat flux: 1.25e-13 λ obs: 2640.17 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.05	
2641.99	--	--				lwp14062.dat flux: 4.36e-14 λ obs: 2641.99 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2642.58	--	--			lwp6906.dat flux: 7.59e-14 λ obs: 2642.58 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2643.54	--	--					lwp19910.dat flux: 8.27e-14 λ obs: 2643.54 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2645.34	--	--			lwp12044.dat flux: 5.93e-14 λ obs: 2645.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwr11781.dat flux: 2.15e-13 λ obs: 2645.69 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.35
2648.61	--	--			lwp13954.dat flux: 1.67e-13 λ obs: 2648.61 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2649.72	--	--					lwp19901.dat flux: 7.37e-14 λ obs: 2649.72 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2650.88	--	--				lwp14062.dat flux: 2.96e-14 λ obs: 2650.88 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2653.11	--	--			lwp13856.dat flux: 4.39e-14 λ obs: 2653.28 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp12172.dat flux: 6.19e-14 λ obs: 2653.11 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.17	
2653.85	--	--					lwp12172.dat flux: 4.39e-14 λ obs: 2653.85 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2655.18	--	--					lwp12172.dat flux: 1.16e-13 λ obs: 2655.18 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2656.57	--	--						lwp14117.dat flux: 4.23e-14 λ obs: 2656.57 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2661.08	--	--			lwp13856.dat flux: 5.91e-14 λ obs: 2661.08 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp19910.dat flux: 1.57e-13 λ obs: 2661.10 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.03	
2661.87	--	--					lwp14062.dat flux: 6.61e-14 λ obs: 2661.87 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2663.43	--	--						lwp12197.dat flux: 2.00e-13 λ obs: 2663.43 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2664.02	--	--						lwp19901.dat flux: 3.35e-14 λ obs: 2664.02 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2665.82	--	--			lwp12044.dat flux: 4.79e-14 λ obs: 2665.82 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2666.27	--	--				lwp13904.dat flux: 5.48e-13 λ obs: 2666.27 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2669.04	--	--						lwp19900.dat flux: 5.83e-14 λ obs: 2669.04 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2671.34	2669.17		AlII		lwp13856.dat flux: 5.39e-14 λ obs: 2671.34 rv: 244.79 $\Delta \lambda$ abs: 2.18 $\Delta \lambda$ rel: 0.00			
2672.97	--	--					lwp14062.dat flux: 1.70e-13 λ obs: 2672.97 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2677.47	--	--						lwp14117.dat flux: 3.82e-14 λ obs: 2677.47 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2678.78	--	--					lwp12172.dat flux: 9.51e-14 λ obs: 2678.78 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2679.38	--	--				lwp6906.dat flux: 3.98e-14 λ obs: 2679.38 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2681.42	2678.79		CrII		lwp12033.dat flux: 5.82e-14 λ obs: 2681.42 rv: 294.52 $\Delta \lambda$ abs: 2.63 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 8.07e-14 λ obs: 2681.12 rv: 261.39 $\Delta \lambda$ abs: 2.33 $\Delta \lambda$ rel: -0.30		
2684.08	--	--						lwp19910.dat flux: 1.06e-13 λ obs: 2684.08 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2688.48	--	--	--	--	--	lwp6906.dat flux: 1.23e-13 λ obs: 2688.48 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 7.80e-14 λ obs: 2688.78 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.30	
2691.84	--	--	--	--	--			lwp14117.dat flux: 3.14e-14 λ obs: 2691.84 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2694.45	2692.83	FeII				lwp12044.dat flux: 8.58e-14 λ obs: 2694.45 rv: 179.59 $\Delta \lambda$ abs: 1.61 $\Delta \lambda$ rel: 0.00	lwp19879.dat flux: 4.71e-14 λ obs: 2694.36 rv: 169.78 $\Delta \lambda$ abs: 1.52 $\Delta \lambda$ rel: -0.09	lwr11781.dat flux: 9.07e-14 λ obs: 2694.54 rv: 189.85 $\Delta \lambda$ abs: 1.70 $\Delta \lambda$ rel: 0.09
2695.41	2692.83	FeII						lwp19889.dat flux: 5.93e-14 λ obs: 2695.41 rv: 286.65 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: 0.00
2696.31	2692.83	FeII						lwp19878.dat flux: 5.60e-14 λ obs: 2696.31 rv: 387.58 $\Delta \lambda$ abs: 3.48 $\Delta \lambda$ rel: 0.00
2700.71	2698.41	CrII						lwr11781.dat flux: 7.74e-14 λ obs: 2700.71 rv: 255.71 $\Delta \lambda$ abs: 2.30 $\Delta \lambda$ rel: 0.00
2701.69	2698.68	CrII						lwp19889.dat flux: 5.17e-14 λ obs: 2701.69 rv: 333.93 $\Delta \lambda$ abs: 3.00 $\Delta \lambda$ rel: 0.00
2702.39	--	--	--	--	--			lwr11781.dat flux: 7.11e-14 λ obs: 2702.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2703.81	--	--				lwp12044.dat flux: 9.49e-14 λ obs: 2703.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2704.35	--	--						lwp19879.dat flux: 3.30e-14 λ obs: 2704.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp19900.dat flux: 1.71e-13 λ obs: 2704.27 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.08
2705.30	--	--				lwp12044.dat flux: 1.42e-13 λ obs: 2705.30 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 5.90e-14 λ obs: 2704.97 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.34	lwr11781.dat flux: 9.55e-14 λ obs: 2705.30 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.01
2706.38	--	--				lwp12033.dat flux: 7.05e-14 λ obs: 2706.38 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2708.09	--	--						
2710.69	2708.40		MnII				lwp7874.dat flux: 6.67e-14 λ obs: 2710.69 rv: 253.34 $\Delta \lambda$ abs: 2.29 $\Delta \lambda$ rel: 0.00	
2711.97	2709.38		FeII					lwp19900.dat flux: 5.50e-14 λ obs: 2711.97 rv: 286.44 $\Delta \lambda$ abs: 2.59 $\Delta \lambda$ rel: 0.00 lwp19902.dat flux: 1.33e-13 λ obs: 2711.93 rv: 281.79 $\Delta \lambda$ abs: 2.54 $\Delta \lambda$ rel: -0.04

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2713.16	--	--				lwp7874.dat flux: 8.86e-14 λ obs: 2713.16 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2714.88	2712.30	CrII				lwp14062.dat flux: 4.16e-14 λ obs: 2714.88 rv: 285.02 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.00	
2716.65	2714.41	FeII					
2717.28	2714.41	FeII		lwp13856.dat flux: 8.90e-14 λ obs: 2717.66 rv: 358.73 $\Delta \lambda$ abs: 3.25 $\Delta \lambda$ rel: 0.00		lwp19888.dat flux: 4.88e-14 λ obs: 2717.30 rv: 319.50 $\Delta \lambda$ abs: 2.89 $\Delta \lambda$ rel: -0.35	
2717.81	2714.41	FeII		lwp13856.dat flux: 8.90e-14 λ obs: 2717.66 rv: 358.73 $\Delta \lambda$ abs: 3.25 $\Delta \lambda$ rel: 0.00	lwp6906.dat flux: 9.75e-14 λ obs: 2717.81 rv: 375.76 $\Delta \lambda$ abs: 3.40 $\Delta \lambda$ rel: 0.15	lwp19889.dat flux: 3.19e-14 λ obs: 2717.91 rv: 386.37 $\Delta \lambda$ abs: 3.50 $\Delta \lambda$ rel: 0.25	
					lwp13954.dat flux: 5.88e-14 λ obs: 2717.72 rv: 365.94 $\Delta \lambda$ abs: 3.31 $\Delta \lambda$ rel: 0.07		
2719.08	2716.70	FeII	lwp13775.dat flux: 8.89e-14 λ obs: 2719.08 rv: 263.70 $\Delta \lambda$ abs: 2.39 $\Delta \lambda$ rel: 0.00				
2719.72	2717.51	CrII				lwp19888.dat flux: 7.71e-14 λ obs: 2719.72 rv: 244.51 $\Delta \lambda$ abs: 2.21 $\Delta \lambda$ rel: 0.00	
2720.97	2718.62	FeII			lwp6906.dat flux: 5.70e-14 λ obs: 2720.97 rv: 259.44 $\Delta \lambda$ abs: 2.35 $\Delta \lambda$ rel: 0.00		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2722.42	--	--					lwp19879.dat flux: 2.23e-14 λ obs: 2722.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2724.67	2722.74	CrII					lwp19900.dat flux: 8.46e-14 λ obs: 2724.67 rv: 212.56 $\Delta \lambda$ abs: 1.93 $\Delta \lambda$ rel: 0.00
2726.02	--	--					lwr11781.dat flux: 7.45e-14 λ obs: 2726.02 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2727.25	2724.88	FeII					lwr11781.dat flux: 6.69e-14 λ obs: 2727.25 rv: 260.91 $\Delta \lambda$ abs: 2.37 $\Delta \lambda$ rel: 0.00
2729.73	2727.54	FeII					lwr11781.dat flux: 4.18e-14 λ obs: 2729.73 rv: 241.30 $\Delta \lambda$ abs: 2.19 $\Delta \lambda$ rel: 0.00
2733.79	2730.73	FeII					lwp19901.dat flux: 1.43e-13 λ obs: 2733.79 rv: 335.75 $\Delta \lambda$ abs: 3.06 $\Delta \lambda$ rel: 0.00
2735.22	2732.45	FeII			lwp1610.dat flux: 7.87e-14 λ obs: 2735.22 rv: 305.01 $\Delta \lambda$ abs: 2.78 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 1.88e-13 λ obs: 2735.12 rv: 293.14 $\Delta \lambda$ abs: 2.67 $\Delta \lambda$ rel: -0.11	lwp14117.dat flux: 1.21e-13 λ obs: 2735.03 rv: 283.81 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: -0.19
				lwp12008.dat flux: 6.25e-14 λ obs: 2735.14 rv: 295.76 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: -0.08	lwp12172.dat flux: 3.43e-14 λ obs: 2735.11 rv: 292.04 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: -0.12	lwp19878.dat flux: 7.41e-14 λ obs: 2735.11 rv: 292.14 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: -0.12	
				lwp13954.dat flux: 1.47e-13 λ obs: 2735.09 rv: 290.62 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: -0.13	lwp14062.dat flux: 1.49e-13 λ obs: 2735.13 rv: 294.34 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: -0.10	lwp19888.dat flux: 7.35e-14 λ obs: 2735.16 rv: 297.53 $\Delta \lambda$ abs: 2.71 $\Delta \lambda$ rel: -0.07	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2735.22	2732.45	FeII					lwp19889.dat flux: 1.04e-13 λ obs: 2735.45 rv: 329.59 $\Delta \lambda$ abs: 3.00 $\Delta \lambda$ rel: 0.22 lwp19900.dat flux: 9.81e-14 λ obs: 2735.08 rv: 289.52 $\Delta \lambda$ abs: 2.64 $\Delta \lambda$ rel: -0.14 lwp19901.dat flux: 1.29e-13 λ obs: 2735.35 rv: 319.27 $\Delta \lambda$ abs: 2.91 $\Delta \lambda$ rel: 0.13 lwp19902.dat flux: 1.28e-13 λ obs: 2734.84 rv: 262.60 $\Delta \lambda$ abs: 2.39 $\Delta \lambda$ rel: -0.39 lwp19910.dat flux: 1.00e-13 λ obs: 2735.05 rv: 286.43 $\Delta \lambda$ abs: 2.61 $\Delta \lambda$ rel: -0.17 lwp19911.dat flux: 9.46e-14 λ obs: 2735.39 rv: 323.34 $\Delta \lambda$ abs: 2.95 $\Delta \lambda$ rel: 0.17 lwr11781.dat flux: 5.90e-14 λ obs: 2735.24 rv: 307.07 $\Delta \lambda$ abs: 2.80 $\Delta \lambda$ rel: 0.02
2739.17	2736.96	FeII			lwp1610.dat flux: 2.27e-13 λ obs: 2739.17 rv: 241.67 $\Delta \lambda$ abs: 2.20 $\Delta \lambda$ rel: 0.00		
2740.96	--	--					lwp19911.dat flux: 1.17e-13 λ obs: 2740.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2741.37	2739.55	FeII				lwp12172.dat flux: 6.71e-14 λ obs: 2741.37 rv: 199.52 $\Delta \lambda$ abs: 1.82 $\Delta \lambda$ rel: 0.00	lwp19879.dat flux: 2.71e-14 λ obs: 2741.71 rv: 236.31 $\Delta \lambda$ abs: 2.16 $\Delta \lambda$ rel: 0.34
2741.92	2739.55	FeII	lwp13775.dat flux: 8.65e-14 λ obs: 2741.92 rv: 259.62 $\Delta \lambda$ abs: 2.37 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 7.75e-14 λ obs: 2741.96 rv: 263.90 $\Delta \lambda$ abs: 2.41 $\Delta \lambda$ rel: 0.04	lwp13904.dat flux: 6.15e-14 λ obs: 2742.00 rv: 268.71 $\Delta \lambda$ abs: 2.45 $\Delta \lambda$ rel: 0.08		lwp19878.dat flux: 2.74e-14 λ obs: 2742.17 rv: 287.46 $\Delta \lambda$ abs: 2.63 $\Delta \lambda$ rel: 0.25 lwp19879.dat flux: 2.71e-14 λ obs: 2741.71 rv: 236.31 $\Delta \lambda$ abs: 2.16 $\Delta \lambda$ rel: -0.21 lwp19879.dat flux: 4.31e-14 λ obs: 2742.27 rv: 297.96 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.35 lwp19910.dat flux: 2.83e-14 λ obs: 2742.13 rv: 283.18 $\Delta \lambda$ abs: 2.59 $\Delta \lambda$ rel: 0.22
2742.73	2739.55	FeII					lwp19879.dat flux: 2.55e-14 λ obs: 2742.73 rv: 348.12 $\Delta \lambda$ abs: 3.18 $\Delta \lambda$ rel: 0.00 lwp19901.dat flux: 2.71e-14 λ obs: 2742.45 rv: 317.88 $\Delta \lambda$ abs: 2.90 $\Delta \lambda$ rel: -0.28
2743.99	2741.40	FeII					
2744.97	2741.40	FeII	lwp5842.dat flux: 1.05e-13 λ obs: 2744.97 rv: 391.33 $\Delta \lambda$ abs: 3.58 $\Delta \lambda$ rel: 0.00				

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2745.70	2743.20	FeII		lwp13856.dat flux: 3.25e-14 λ obs: 2745.70 rv: 274.04 $\Delta \lambda$ abs: 2.51 $\Delta \lambda$ rel: 0.00			lwp19879.dat flux: 3.52e-14 λ obs: 2745.90 rv: 295.06 $\Delta \lambda$ abs: 2.70 $\Delta \lambda$ rel: 0.19 lwp19888.dat flux: 2.68e-14 λ obs: 2745.84 rv: 289.58 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: 0.14
2747.70	2744.26	FeII					lwp19888.dat flux: 7.99e-14 λ obs: 2747.70 rv: 375.73 $\Delta \lambda$ abs: 3.44 $\Delta \lambda$ rel: 0.00
2748.42	2746.48	FeII					
2749.01	2746.48	FeII	lwp13775.dat flux: 1.13e-13 λ obs: 2749.01 rv: 275.93 $\Delta \lambda$ abs: 2.53 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 8.48e-14 λ obs: 2748.94 rv: 268.38 $\Delta \lambda$ abs: 2.46 $\Delta \lambda$ rel: -0.07			lwp19878.dat flux: 3.54e-14 λ obs: 2749.17 rv: 292.86 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.16 lwp19888.dat flux: 4.09e-14 λ obs: 2749.17 rv: 293.40 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: 0.16 lwp19901.dat flux: 5.07e-14 λ obs: 2749.34 rv: 311.98 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.33 lwp19910.dat flux: 3.60e-14 λ obs: 2749.16 rv: 292.65 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.15
2749.45	2746.98	FeII		lwp13856.dat flux: 4.53e-14 λ obs: 2749.56 rv: 281.77 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.00	lwp13954.dat flux: 1.77e-13 λ obs: 2749.78 rv: 305.69 $\Delta \lambda$ abs: 2.80 $\Delta \lambda$ rel: 0.22		lwp19878.dat flux: 3.54e-14 λ obs: 2749.17 rv: 238.42 $\Delta \lambda$ abs: 2.18 $\Delta \lambda$ rel: -0.40

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2749.45	2746.98	FeII					lwp19888.dat flux: 4.09e-14 λ obs: 2749.17 rv: 238.95 $\Delta \lambda$ abs: 2.19 $\Delta \lambda$ rel: -0.39 lwp19889.dat flux: 2.82e-14 λ obs: 2749.45 rv: 269.32 $\Delta \lambda$ abs: 2.47 $\Delta \lambda$ rel: -0.11 lwp19901.dat flux: 5.07e-14 λ obs: 2749.34 rv: 257.54 $\Delta \lambda$ abs: 2.36 $\Delta \lambda$ rel: -0.22 lwp19901.dat flux: 3.56e-14 λ obs: 2749.81 rv: 309.39 $\Delta \lambda$ abs: 2.83 $\Delta \lambda$ rel: 0.25 lwp19910.dat flux: 3.60e-14 λ obs: 2749.16 rv: 238.21 $\Delta \lambda$ abs: 2.18 $\Delta \lambda$ rel: -0.40
2749.95	2746.98	FeII	lwp13775.dat flux: 6.87e-14 λ obs: 2749.95 rv: 324.35 $\Delta \lambda$ abs: 2.97 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 4.53e-14 λ obs: 2749.56 rv: 281.77 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: -0.39 lwp13856.dat flux: 2.90e-14 λ obs: 2749.92 rv: 320.75 $\Delta \lambda$ abs: 2.94 $\Delta \lambda$ rel: -0.03	lwp13954.dat flux: 1.77e-13 λ obs: 2749.78 rv: 305.69 $\Delta \lambda$ abs: 2.80 $\Delta \lambda$ rel: -0.17		lwp19901.dat flux: 3.56e-14 λ obs: 2749.81 rv: 309.39 $\Delta \lambda$ abs: 2.83 $\Delta \lambda$ rel: -0.14
2750.92	2749.18	FeII					
2752.64	2749.49	FeII					lwp19911.dat flux: 6.47e-14 λ obs: 2752.33 rv: 309.86 $\Delta \lambda$ abs: 2.84 $\Delta \lambda$ rel: 0.00

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2753.57	--	--	--					lwp12197.dat flux: 3.50e-13 λ obs: 2753.57 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2754.18	--	--	--				lwp12172.dat flux: 2.75e-14 λ obs: 2754.18 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwr11781.dat flux: 7.48e-14 λ obs: 2754.31 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.13
2755.50	--	--	--					lwp12197.dat flux: 2.44e-13 λ obs: 2755.50 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2758.32	2755.74	FeII				lwp12033.dat flux: 8.28e-14 λ obs: 2758.30 rv: 279.23 $\Delta \lambda$ abs: 2.56 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 9.17e-14 λ obs: 2758.32 rv: 280.98 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.02	
						lwp12044.dat flux: 7.86e-14 λ obs: 2758.20 rv: 267.59 $\Delta \lambda$ abs: 2.46 $\Delta \lambda$ rel: -0.11		
2759.42	2757.72	CrII						lwp12197.dat flux: 3.32e-13 λ obs: 2759.42 rv: 185.04 $\Delta \lambda$ abs: 1.70 $\Delta \lambda$ rel: 0.00
2760.11	2757.72	CrII						lwp19901.dat flux: 6.16e-14 λ obs: 2760.11 rv: 259.56 $\Delta \lambda$ abs: 2.39 $\Delta \lambda$ rel: 0.00
2761.89	2759.33	FeII	lwp5842.dat flux: 3.36e-13 λ obs: 2761.89 rv: 277.56 $\Delta \lambda$ abs: 2.55 $\Delta \lambda$ rel: 0.00			lwp12033.dat flux: 9.72e-14 λ obs: 2761.98 rv: 287.78 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: 0.09	lwp7874.dat flux: 1.33e-13 λ obs: 2761.97 rv: 287.01 $\Delta \lambda$ abs: 2.64 $\Delta \lambda$ rel: 0.09	lwp14117.dat flux: 7.30e-14 λ obs: 2761.94 rv: 283.22 $\Delta \lambda$ abs: 2.60 $\Delta \lambda$ rel: 0.05
						lwp12044.dat flux: 1.00e-13 λ obs: 2762.05 rv: 295.19 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.16	lwp14062.dat flux: 6.53e-14 λ obs: 2761.97 rv: 286.38 $\Delta \lambda$ abs: 2.63 $\Delta \lambda$ rel: 0.08	lwp19878.dat flux: 8.16e-14 λ obs: 2762.00 rv: 290.60 $\Delta \lambda$ abs: 2.67 $\Delta \lambda$ rel: 0.12

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2761.89	2759.33	FeII			lwp13904.dat flux: 1.48e-13 λ obs: 2761.88 rv: 277.46 $\Delta \lambda$ abs: 2.55 $\Delta \lambda$ rel: 0.00		lwp19879.dat flux: 9.26e-14 λ obs: 2762.12 rv: 303.34 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.24 lwp19888.dat flux: 1.12e-13 λ obs: 2762.06 rv: 296.70 $\Delta \lambda$ abs: 2.73 $\Delta \lambda$ rel: 0.18 lwp19900.dat flux: 1.14e-13 λ obs: 2761.95 rv: 284.31 $\Delta \lambda$ abs: 2.61 $\Delta \lambda$ rel: 0.06 lwp19901.dat flux: 9.54e-14 λ obs: 2762.23 rv: 314.96 $\Delta \lambda$ abs: 2.90 $\Delta \lambda$ rel: 0.34 lwp19901.dat flux: 1.17e-13 λ obs: 2762.27 rv: 319.95 $\Delta \lambda$ abs: 2.94 $\Delta \lambda$ rel: 0.39 lwp19910.dat flux: 1.05e-13 λ obs: 2762.01 rv: 291.37 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.13
2762.42	2759.33	FeII			lwp12044.dat flux: 1.00e-13 λ obs: 2762.05 rv: 295.19 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.00		lwp19879.dat flux: 9.26e-14 λ obs: 2762.12 rv: 303.34 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.07 lwp19888.dat flux: 1.12e-13 λ obs: 2762.06 rv: 296.70 $\Delta \lambda$ abs: 2.73 $\Delta \lambda$ rel: 0.01 lwp19901.dat flux: 9.54e-14 λ obs: 2762.23 rv: 314.96 $\Delta \lambda$ abs: 2.90 $\Delta \lambda$ rel: 0.18

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2762.42	2759.33	FeII					lwp19901.dat flux: 1.17e-13 λ obs: 2762.27 rv: 319.95 $\Delta \lambda$ abs: 2.94 $\Delta \lambda$ rel: 0.23 lwp19911.dat flux: 9.66e-14 λ obs: 2762.42 rv: 335.19 $\Delta \lambda$ abs: 3.08 $\Delta \lambda$ rel: 0.37
2763.99	2761.81	FeII					
2766.07	2763.50	FeII					lwp12197.dat flux: 4.20e-13 λ obs: 2766.07 rv: 279.11 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: 0.00 lwp19910.dat flux: 3.31e-14 λ obs: 2765.98 rv: 268.27 $\Delta \lambda$ abs: 2.47 $\Delta \lambda$ rel: -0.10
2768.30	--	--					lwp19911.dat flux: 4.53e-14 λ obs: 2768.30 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2769.58	--	--	lwp5842.dat flux: 8.84e-13 λ obs: 2769.58 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 2.25e-13 λ obs: 2769.93 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.35			
2772.01	2768.94	FeII	lwp13775.dat flux: 1.57e-13 λ obs: 2772.01 rv: 333.68 $\Delta \lambda$ abs: 3.08 $\Delta \lambda$ rel: 0.00				
2775.91	2772.73	FeII				lwp14062.dat flux: 8.75e-14 λ obs: 2775.91 rv: 344.06 $\Delta \lambda$ abs: 3.18 $\Delta \lambda$ rel: 0.00	lwp19902.dat flux: 7.51e-14 λ obs: 2776.08 rv: 363.42 $\Delta \lambda$ abs: 3.36 $\Delta \lambda$ rel: 0.18

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2777.05	2774.73	FeII	lwp13775.dat flux: 1.36e-13 λ obs: 2777.30 rv: 278.19 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.48e-13 λ obs: 2777.23 rv: 269.56 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: -0.08	lwp6906.dat flux: 7.48e-14 λ obs: 2777.37 rv: 285.24 $\Delta \lambda$ abs: 2.64 $\Delta \lambda$ rel: 0.07 lwp12008.dat flux: 5.90e-14 λ obs: 2777.40 rv: 288.91 $\Delta \lambda$ abs: 2.67 $\Delta \lambda$ rel: 0.10 lwp12033.dat flux: 5.77e-14 λ obs: 2777.25 rv: 272.78 $\Delta \lambda$ abs: 2.52 $\Delta \lambda$ rel: -0.05 lwp13904.dat flux: 1.90e-13 λ obs: 2777.17 rv: 263.38 $\Delta \lambda$ abs: 2.44 $\Delta \lambda$ rel: -0.14 lwp13954.dat flux: 1.06e-13 λ obs: 2777.31 rv: 278.95 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.01	lwp14062.dat flux: 6.63e-14 λ obs: 2777.27 rv: 274.52 $\Delta \lambda$ abs: 2.54 $\Delta \lambda$ rel: -0.03	lwp14117.dat flux: 3.99e-14 λ obs: 2777.32 rv: 279.93 $\Delta \lambda$ abs: 2.59 $\Delta \lambda$ rel: 0.02 lwp19878.dat flux: 7.34e-14 λ obs: 2777.39 rv: 287.51 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: 0.09 lwp19888.dat flux: 5.19e-14 λ obs: 2777.42 rv: 291.07 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: 0.12 lwp19900.dat flux: 5.27e-14 λ obs: 2777.34 rv: 282.41 $\Delta \lambda$ abs: 2.61 $\Delta \lambda$ rel: 0.04 lwp19902.dat flux: 2.10e-13 λ obs: 2777.05 rv: 250.74 $\Delta \lambda$ abs: 2.32 $\Delta \lambda$ rel: -0.25 lwp19910.dat flux: 5.66e-14 λ obs: 2777.37 rv: 284.89 $\Delta \lambda$ abs: 2.64 $\Delta \lambda$ rel: 0.06
2777.53	2774.73	FeII	lwp13775.dat flux: 1.36e-13 λ obs: 2777.30 rv: 278.19 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.48e-13 λ obs: 2777.23 rv: 269.56 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: -0.08	lwp1610.dat flux: 9.95e-14 λ obs: 2777.53 rv: 302.08 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.22	lwp7874.dat flux: 1.09e-13 λ obs: 2777.46 rv: 294.63 $\Delta \lambda$ abs: 2.73 $\Delta \lambda$ rel: 0.15	lwp14117.dat flux: 3.99e-14 λ obs: 2777.32 rv: 279.93 $\Delta \lambda$ abs: 2.59 $\Delta \lambda$ rel: 0.02 lwp14117.dat flux: 2.40e-14 λ obs: 2777.92 rv: 344.36 $\Delta \lambda$ abs: 3.19 $\Delta \lambda$ rel: 0.61 lwp19878.dat flux: 7.34e-14 λ obs: 2777.39 rv: 287.51 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: 0.09

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2777.53	2774.73	FeII			lwp12033.dat flux: 5.77e-14 λ obs: 2777.25 rv: 272.78 $\Delta \lambda$ abs: 2.52 $\Delta \lambda$ rel: -0.05 lwp13904.dat flux: 1.90e-13 λ obs: 2777.17 rv: 263.38 $\Delta \lambda$ abs: 2.44 $\Delta \lambda$ rel: -0.14 lwp13954.dat flux: 1.06e-13 λ obs: 2777.31 rv: 278.95 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.01		lwp19879.dat flux: 6.40e-14 λ obs: 2777.48 rv: 296.69 $\Delta \lambda$ abs: 2.74 $\Delta \lambda$ rel: 0.17 lwp19888.dat flux: 5.19e-14 λ obs: 2777.42 rv: 291.07 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: 0.12 lwp19889.dat flux: 6.03e-14 λ obs: 2777.74 rv: 324.91 $\Delta \lambda$ abs: 3.01 $\Delta \lambda$ rel: 0.43 lwp19900.dat flux: 5.27e-14 λ obs: 2777.34 rv: 282.41 $\Delta \lambda$ abs: 2.61 $\Delta \lambda$ rel: 0.04 lwp19901.dat flux: 5.44e-14 λ obs: 2777.66 rv: 316.15 $\Delta \lambda$ abs: 2.92 $\Delta \lambda$ rel: 0.35 lwp19902.dat flux: 7.63e-14 λ obs: 2777.83 rv: 335.07 $\Delta \lambda$ abs: 3.10 $\Delta \lambda$ rel: 0.53 lwp19910.dat flux: 5.66e-14 λ obs: 2777.37 rv: 284.89 $\Delta \lambda$ abs: 2.64 $\Delta \lambda$ rel: 0.06 lwp19911.dat flux: 4.57e-14 λ obs: 2777.72 rv: 322.53 $\Delta \lambda$ abs: 2.98 $\Delta \lambda$ rel: 0.41
2778.19	2775.34	FeII	lwp13775.dat flux: 1.36e-13 λ obs: 2777.89 rv: 276.10 $\Delta \lambda$ abs: 2.55 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.33e-13 λ obs: 2777.85 rv: 272.08 $\Delta \lambda$ abs: 2.52 $\Delta \lambda$ rel: -0.04	lwp1610.dat flux: 6.49e-14 λ obs: 2778.19 rv: 308.08 $\Delta \lambda$ abs: 2.85 $\Delta \lambda$ rel: 0.30	lwp7874.dat flux: 1.07e-13 λ obs: 2778.04 rv: 292.19 $\Delta \lambda$ abs: 2.70 $\Delta \lambda$ rel: 0.15	lwp14117.dat flux: 2.40e-14 λ obs: 2777.92 rv: 278.79 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.02

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2778.19	2775.34	FeII			lwp12008.dat flux: 9.47e-14 λ obs: 2778.00 rv: 287.97 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: 0.11	lwp14062.dat flux: 5.00e-14 λ obs: 2778.02 rv: 289.61 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.13	lwp19878.dat flux: 5.50e-14 λ obs: 2778.04 rv: 292.41 $\Delta \lambda$ abs: 2.71 $\Delta \lambda$ rel: 0.15
					lwp12033.dat flux: 6.23e-14 λ obs: 2777.99 rv: 286.26 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: 0.09		lwp19879.dat flux: 6.79e-14 λ obs: 2778.13 rv: 301.93 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.24
					lwp12038.dat flux: 1.83e-13 λ obs: 2778.14 rv: 302.46 $\Delta \lambda$ abs: 2.80 $\Delta \lambda$ rel: 0.24		lwp19888.dat flux: 5.53e-14 λ obs: 2778.06 rv: 294.04 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.17
					lwp13904.dat flux: 1.67e-13 λ obs: 2777.94 rv: 281.61 $\Delta \lambda$ abs: 2.61 $\Delta \lambda$ rel: 0.05		lwp19889.dat flux: 5.49e-14 λ obs: 2778.35 rv: 325.26 $\Delta \lambda$ abs: 3.01 $\Delta \lambda$ rel: 0.45
					lwp13954.dat flux: 8.57e-14 λ obs: 2778.02 rv: 290.45 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: 0.13		lwp19900.dat flux: 4.64e-14 λ obs: 2778.00 rv: 287.23 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: 0.10
							lwp19901.dat flux: 5.39e-14 λ obs: 2778.26 rv: 315.87 $\Delta \lambda$ abs: 2.92 $\Delta \lambda$ rel: 0.37
							lwp19902.dat flux: 7.63e-14 λ obs: 2777.83 rv: 269.50 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: -0.06
							lwp19910.dat flux: 5.07e-14 λ obs: 2777.96 rv: 283.22 $\Delta \lambda$ abs: 2.62 $\Delta \lambda$ rel: 0.07
							lwp19911.dat flux: 4.70e-14 λ obs: 2778.35 rv: 325.92 $\Delta \lambda$ abs: 3.02 $\Delta \lambda$ rel: 0.46

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2778.62	2775.34	FeII					lwp19889.dat flux: 5.49e-14 λ obs: 2778.35 rv: 325.26 $\Delta \lambda$ abs: 3.01 $\Delta \lambda$ rel: 0.00 lwp19901.dat flux: 5.39e-14 λ obs: 2778.26 rv: 315.87 $\Delta \lambda$ abs: 2.92 $\Delta \lambda$ rel: -0.09 lwp19911.dat flux: 4.70e-14 λ obs: 2778.35 rv: 325.92 $\Delta \lambda$ abs: 3.02 $\Delta \lambda$ rel: 0.01
2780.07	2777.59	FeII			lwp12044.dat flux: 8.81e-14 λ obs: 2780.20 rv: 282.68 $\Delta \lambda$ abs: 2.62 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 5.86e-14 λ obs: 2780.07 rv: 268.62 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: -0.13	
2781.10	2777.59	FeII					
2782.05	--	--	lwp13775.dat flux: 7.93e-14 λ obs: 2782.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2782.96	--	--	lwp13775.dat flux: 7.20e-14 λ obs: 2782.99 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			lwp12172.dat flux: 5.18e-14 λ obs: 2782.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.03	
2783.42	--	--					lwp19879.dat flux: 1.85e-14 λ obs: 2783.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2785.07	--	--			lwp12044.dat flux: 8.45e-14 λ obs: 2785.07 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 5.28e-14 λ obs: 2784.92 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.14	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2785.91	--	--					
2787.71	2785.02	FeII	lwp13775.dat flux: 4.83e-14 λ obs: 2787.71 rv: 289.13 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 8.07e-14 λ obs: 2787.61 rv: 278.24 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: -0.10		lwp14062.dat flux: 1.65e-14 λ obs: 2787.74 rv: 292.99 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.04	lwp19879.dat flux: 3.97e-14 λ obs: 2787.78 rv: 297.31 $\Delta \lambda$ abs: 2.76 $\Delta \lambda$ rel: 0.08 lwp19888.dat flux: 2.92e-14 λ obs: 2787.78 rv: 296.99 $\Delta \lambda$ abs: 2.76 $\Delta \lambda$ rel: 0.07 lwp19901.dat flux: 3.42e-14 λ obs: 2788.00 rv: 321.00 $\Delta \lambda$ abs: 2.98 $\Delta \lambda$ rel: 0.30 lwp19910.dat flux: 2.85e-14 λ obs: 2787.69 rv: 286.65 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: -0.02 lwp19911.dat flux: 5.19e-14 λ obs: 2788.08 rv: 329.42 $\Delta \lambda$ abs: 3.06 $\Delta \lambda$ rel: 0.37
2788.75	2785.02	FeII				lwp14062.dat flux: 3.25e-14 λ obs: 2788.75 rv: 401.47 $\Delta \lambda$ abs: 3.73 $\Delta \lambda$ rel: 0.00	
2790.01	2787.24	FeII					lwp19911.dat flux: 6.29e-14 λ obs: 2790.01 rv: 298.36 $\Delta \lambda$ abs: 2.77 $\Delta \lambda$ rel: 0.00
2797.37	2795.52	MgII	lwp5842.dat flux: 3.41e-13 λ obs: 2797.17 rv: 176.85 $\Delta \lambda$ abs: 1.65 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 2.32e-13 λ obs: 2797.00 rv: 159.03 $\Delta \lambda$ abs: 1.48 $\Delta \lambda$ rel: -0.17	lwp1610.dat flux: 1.09e-12 λ obs: 2797.37 rv: 198.54 $\Delta \lambda$ abs: 1.85 $\Delta \lambda$ rel: 0.20	lwp7874.dat flux: 7.51e-13 λ obs: 2797.28 rv: 188.25 $\Delta \lambda$ abs: 1.75 $\Delta \lambda$ rel: 0.11	lwp14117.dat flux: 5.29e-13 λ obs: 2797.15 rv: 174.28 $\Delta \lambda$ abs: 1.62 $\Delta \lambda$ rel: -0.02

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2797.37	2795.52	MgII			lwp6906.dat flux: 3.39e-13 λ obs: 2797.22 rv: 182.11 $\Delta \lambda$ abs: 1.70 $\Delta \lambda$ rel: 0.05	lwp12172.dat flux: 3.14e-13 λ obs: 2797.71 rv: 235.01 $\Delta \lambda$ abs: 2.19 $\Delta \lambda$ rel: 0.54	lwp19878.dat flux: 3.42e-13 λ obs: 2797.63 rv: 226.24 $\Delta \lambda$ abs: 2.11 $\Delta \lambda$ rel: 0.46
					lwp12008.dat flux: 5.27e-13 λ obs: 2797.28 rv: 188.77 $\Delta \lambda$ abs: 1.76 $\Delta \lambda$ rel: 0.11	lwp14062.dat flux: 4.84e-13 λ obs: 2797.61 rv: 223.64 $\Delta \lambda$ abs: 2.08 $\Delta \lambda$ rel: 0.44	lwp19879.dat flux: 4.04e-13 λ obs: 2797.71 rv: 234.59 $\Delta \lambda$ abs: 2.19 $\Delta \lambda$ rel: 0.54
					lwp12033.dat flux: 5.39e-13 λ obs: 2797.53 rv: 215.60 $\Delta \lambda$ abs: 2.01 $\Delta \lambda$ rel: 0.36		lwp19888.dat flux: 3.59e-13 λ obs: 2797.64 rv: 227.41 $\Delta \lambda$ abs: 2.12 $\Delta \lambda$ rel: 0.47
					lwp12038.dat flux: 4.89e-13 λ obs: 2797.31 rv: 191.89 $\Delta \lambda$ abs: 1.79 $\Delta \lambda$ rel: 0.14		lwp19900.dat flux: 7.19e-13 λ obs: 2797.54 rv: 216.99 $\Delta \lambda$ abs: 2.02 $\Delta \lambda$ rel: 0.37
					lwp12044.dat flux: 4.32e-13 λ obs: 2797.34 rv: 195.53 $\Delta \lambda$ abs: 1.82 $\Delta \lambda$ rel: 0.17		lwp19902.dat flux: 4.23e-13 λ obs: 2797.17 rv: 176.85 $\Delta \lambda$ abs: 1.65 $\Delta \lambda$ rel: 0.00
					lwp13904.dat flux: 4.64e-13 λ obs: 2797.03 rv: 161.73 $\Delta \lambda$ abs: 1.51 $\Delta \lambda$ rel: -0.14		lwp19910.dat flux: 3.12e-13 λ obs: 2797.49 rv: 210.57 $\Delta \lambda$ abs: 1.96 $\Delta \lambda$ rel: 0.31
					lwp13954.dat flux: 4.61e-13 λ obs: 2797.13 rv: 172.24 $\Delta \lambda$ abs: 1.60 $\Delta \lambda$ rel: -0.04		
2798.13	2795.52	MgII					lwp19889.dat flux: 3.25e-13 λ obs: 2797.92 rv: 257.23 $\Delta \lambda$ abs: 2.40 $\Delta \lambda$ rel: 0.00
							lwp19901.dat flux: 2.92e-13 λ obs: 2797.80 rv: 244.05 $\Delta \lambda$ abs: 2.27 $\Delta \lambda$ rel: -0.12

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2798.13	2795.52	MgII					lwp19911.dat flux: 5.15e-13 λ obs: 2798.01 rv: 266.79 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: 0.09 lwr11781.dat flux: 2.73e-13 λ obs: 2797.84 rv: 248.32 $\Delta \lambda$ abs: 2.31 $\Delta \lambda$ rel: -0.08
2800.64	2797.04	FeII					
2802.45	--	--	lwp5842.dat flux: 3.03e-13 λ obs: 2802.45 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			lwp12172.dat flux: 9.20e-14 λ obs: 2802.68 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.23	lwp19910.dat flux: 5.94e-14 λ obs: 2802.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.35
2803.49	--	--	lwp13775.dat flux: 1.36e-13 λ obs: 2803.49 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.23e-12 λ obs: 2803.82 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.33			
2804.37	2802.70	MgII	lwp5842.dat flux: 1.62e-12 λ obs: 2804.37 rv: 178.54 $\Delta \lambda$ abs: 1.67 $\Delta \lambda$ rel: 0.00 lwp13775.dat flux: 2.43e-13 λ obs: 2804.22 rv: 162.81 $\Delta \lambda$ abs: 1.52 $\Delta \lambda$ rel: -0.15		lwp6906.dat flux: 1.25e-12 λ obs: 2804.58 rv: 201.88 $\Delta \lambda$ abs: 1.89 $\Delta \lambda$ rel: 0.22 lwp12008.dat flux: 1.18e-12 λ obs: 2804.76 rv: 220.93 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: 0.40 lwp12033.dat flux: 1.07e-12 λ obs: 2804.67 rv: 210.97 $\Delta \lambda$ abs: 1.97 $\Delta \lambda$ rel: 0.30 lwp12044.dat flux: 1.05e-12 λ obs: 2804.76 rv: 221.03 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: 0.40	lwp7874.dat flux: 1.87e-12 λ obs: 2804.73 rv: 217.50 $\Delta \lambda$ abs: 2.03 $\Delta \lambda$ rel: 0.36 lwp14062.dat flux: 1.00e-12 λ obs: 2804.74 rv: 218.57 $\Delta \lambda$ abs: 2.04 $\Delta \lambda$ rel: 0.37	lwp19900.dat flux: 1.08e-12 λ obs: 2804.76 rv: 220.51 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: 0.39 lwp19902.dat flux: 1.09e-12 λ obs: 2804.59 rv: 202.84 $\Delta \lambda$ abs: 1.90 $\Delta \lambda$ rel: 0.23

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2804.37	2802.70	MgII			lwp13904.dat flux: 1.33e-12 λ obs: 2804.39 rv: 181.44 $\Delta \lambda$ abs: 1.70 $\Delta \lambda$ rel: 0.03 lwp13954.dat flux: 1.43e-12 λ obs: 2804.54 rv: 196.96 $\Delta \lambda$ abs: 1.84 $\Delta \lambda$ rel: 0.17		
2804.78	2802.70	MgII			lwp1610.dat flux: 2.32e-12 λ obs: 2804.78 rv: 222.96 $\Delta \lambda$ abs: 2.08 $\Delta \lambda$ rel: 0.00 lwp6906.dat flux: 1.25e-12 λ obs: 2804.58 rv: 201.88 $\Delta \lambda$ abs: 1.89 $\Delta \lambda$ rel: -0.20 lwp12008.dat flux: 1.18e-12 λ obs: 2804.76 rv: 220.93 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: -0.02 lwp12033.dat flux: 1.07e-12 λ obs: 2804.67 rv: 210.97 $\Delta \lambda$ abs: 1.97 $\Delta \lambda$ rel: -0.11 lwp12038.dat flux: 1.22e-12 λ obs: 2804.79 rv: 224.45 $\Delta \lambda$ abs: 2.10 $\Delta \lambda$ rel: 0.01 lwp12044.dat flux: 1.05e-12 λ obs: 2804.76 rv: 221.03 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: -0.02 lwp13904.dat flux: 1.33e-12 λ obs: 2804.39 rv: 181.44 $\Delta \lambda$ abs: 1.70 $\Delta \lambda$ rel: -0.39	lwp7874.dat flux: 1.87e-12 λ obs: 2804.73 rv: 217.50 $\Delta \lambda$ abs: 2.03 $\Delta \lambda$ rel: -0.05 lwp12172.dat flux: 6.38e-13 λ obs: 2804.95 rv: 240.94 $\Delta \lambda$ abs: 2.25 $\Delta \lambda$ rel: 0.17 lwp14062.dat flux: 1.00e-12 λ obs: 2804.74 rv: 218.57 $\Delta \lambda$ abs: 2.04 $\Delta \lambda$ rel: -0.04	lwp14117.dat flux: 7.91e-13 λ obs: 2804.84 rv: 228.95 $\Delta \lambda$ abs: 2.14 $\Delta \lambda$ rel: 0.06 lwp19878.dat flux: 1.02e-12 λ obs: 2804.80 rv: 224.90 $\Delta \lambda$ abs: 2.10 $\Delta \lambda$ rel: 0.02 lwp19879.dat flux: 1.01e-12 λ obs: 2804.86 rv: 230.99 $\Delta \lambda$ abs: 2.16 $\Delta \lambda$ rel: 0.07 lwp19888.dat flux: 1.04e-12 λ obs: 2804.83 rv: 227.77 $\Delta \lambda$ abs: 2.13 $\Delta \lambda$ rel: 0.04 lwp19889.dat flux: 9.93e-13 λ obs: 2805.15 rv: 262.24 $\Delta \lambda$ abs: 2.45 $\Delta \lambda$ rel: 0.37 lwp19900.dat flux: 1.08e-12 λ obs: 2804.76 rv: 220.51 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: -0.02 lwp19901.dat flux: 1.07e-12 λ obs: 2805.07 rv: 254.11 $\Delta \lambda$ abs: 2.37 $\Delta \lambda$ rel: 0.29

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2804.78	2802.70	MgII			lwp13954.dat flux: 1.43e-12 λ obs: 2804.54 rv: 196.96 $\Delta \lambda$ abs: 1.84 $\Delta \lambda$ rel: -0.24		lwp19902.dat flux: 1.09e-12 λ obs: 2804.59 rv: 202.84 $\Delta \lambda$ abs: 1.90 $\Delta \lambda$ rel: -0.19 lwp19910.dat flux: 1.06e-12 λ obs: 2804.80 rv: 225.42 $\Delta \lambda$ abs: 2.11 $\Delta \lambda$ rel: 0.02 lwp19911.dat flux: 9.93e-13 λ obs: 2805.15 rv: 262.03 $\Delta \lambda$ abs: 2.45 $\Delta \lambda$ rel: 0.36 lwr11781.dat flux: 8.73e-13 λ obs: 2805.01 rv: 247.69 $\Delta \lambda$ abs: 2.31 $\Delta \lambda$ rel: 0.23
2806.22	--	--					lwp19901.dat flux: 8.06e-14 λ obs: 2806.22 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2806.94	--	--					lwp19879.dat flux: 2.13e-14 λ obs: 2806.94 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2808.12	--	--			lwp13904.dat flux: 5.35e-14 λ obs: 2808.12 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2809.19	--	--					lwp19879.dat flux: 4.07e-14 λ obs: 2809.19 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2810.40	--	--			lwp12008.dat flux: 4.58e-14 λ obs: 2810.40 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2810.40	--	--				lwp12044.dat flux: 7.61e-14 λ obs: 2810.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.05		
2810.95	--	--				lwp12044.dat flux: 2.79e-14 λ obs: 2810.95 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2811.54	2809.78	FeII		lwp13775.dat flux: 1.89e-13 λ obs: 2811.74 rv: 209.16 $\Delta \lambda$ abs: 1.96 $\Delta \lambda$ rel: 0.00		lwp12008.dat flux: 5.07e-14 λ obs: 2811.54 rv: 187.16 $\Delta \lambda$ abs: 1.75 $\Delta \lambda$ rel: -0.21		
2813.23	2809.78	FeII		lwp5842.dat flux: 1.40e-13 λ obs: 2813.23 rv: 367.83 $\Delta \lambda$ abs: 3.45 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 2.16e-13 λ obs: 2813.18 rv: 362.90 $\Delta \lambda$ abs: 3.40 $\Delta \lambda$ rel: -0.05			
2813.82	--	--				lwp12008.dat flux: 4.23e-14 λ obs: 2813.82 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2815.00	--	--				lwp12033.dat flux: 3.45e-14 λ obs: 2815.00 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2817.11	--	--			lwp13856.dat flux: 5.37e-14 λ obs: 2817.11 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			
2817.56	--	--			lwp13856.dat flux: 5.87e-14 λ obs: 2817.56 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			
2821.58	--	--					lwp12197.dat flux: 2.96e-13 λ obs: 2821.58 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2823.33	2820.95	FeII					lwp19878.dat flux: 2.79e-14 λ obs: 2823.33 rv: 253.02 $\Delta \lambda$ abs: 2.38 $\Delta \lambda$ rel: 0.00
2825.97	2823.28	Fel		lwp13856.dat flux: 1.33e-13 λ obs: 2825.86 rv: 274.16 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.00	lwp6906.dat flux: 6.81e-14 λ obs: 2825.97 rv: 285.75 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: 0.11	lwp7874.dat flux: 1.28e-13 λ obs: 2826.06 rv: 296.05 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.21	lwp14117.dat flux: 6.81e-14 λ obs: 2825.94 rv: 282.98 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: 0.08
				lwp13904.dat flux: 1.44e-13 λ obs: 2825.86 rv: 274.47 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: 0.00	lwp14062.dat flux: 8.12e-14 λ obs: 2825.95 rv: 284.46 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.10	lwp19878.dat flux: 5.81e-14 λ obs: 2826.02 rv: 291.59 $\Delta \lambda$ abs: 2.74 $\Delta \lambda$ rel: 0.16	
				lwp13954.dat flux: 1.23e-13 λ obs: 2825.99 rv: 288.19 $\Delta \lambda$ abs: 2.71 $\Delta \lambda$ rel: 0.13		lwp19888.dat flux: 3.94e-14 λ obs: 2826.02 rv: 291.90 $\Delta \lambda$ abs: 2.75 $\Delta \lambda$ rel: 0.17	
						lwp19900.dat flux: 6.18e-14 λ obs: 2825.95 rv: 283.94 $\Delta \lambda$ abs: 2.67 $\Delta \lambda$ rel: 0.09	
2828.86	--	--				lwp14062.dat flux: 5.62e-14 λ obs: 2828.86 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwr11781.dat flux: 9.43e-14 λ obs: 2829.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.35
2829.83	--	--				lwp14062.dat flux: 4.84e-14 λ obs: 2829.83 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp19879.dat flux: 5.90e-14 λ obs: 2830.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.37
2834.39	2831.88	FeII		lwp1610.dat flux: 2.80e-13 λ obs: 2834.39 rv: 265.05 $\Delta \lambda$ abs: 2.50 $\Delta \lambda$ rel: 0.00			lwp19901.dat flux: 5.91e-14 λ obs: 2834.41 rv: 267.27 $\Delta \lambda$ abs: 2.52 $\Delta \lambda$ rel: 0.02

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2835.67	2833.09	FeII		lwp13856.dat flux: 2.63e-13 λ obs: 2835.77 rv: 284.01 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: 0.00	lwp12008.dat flux: 2.37e-13 λ obs: 2835.67 rv: 273.42 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: -0.10	lwp14062.dat flux: 2.91e-14 λ obs: 2835.99 rv: 307.51 $\Delta \lambda$ abs: 2.90 $\Delta \lambda$ rel: 0.22	
2836.50	2833.37	FeII				lwp14062.dat flux: 1.51e-14 λ obs: 2836.50 rv: 331.50 $\Delta \lambda$ abs: 3.13 $\Delta \lambda$ rel: 0.00	
2837.06	2833.37	FeII				lwp14062.dat flux: 1.48e-14 λ obs: 2837.06 rv: 391.21 $\Delta \lambda$ abs: 3.69 $\Delta \lambda$ rel: 0.00	lwp19901.dat flux: 1.24e-13 λ obs: 2837.10 rv: 394.93 $\Delta \lambda$ abs: 3.73 $\Delta \lambda$ rel: 0.04
2838.05	--	--				lwp12172.dat flux: 4.89e-14 λ obs: 2838.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2838.61	--	--				lwp12172.dat flux: 5.90e-14 λ obs: 2838.61 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2839.42	2837.73	FeII			lwp1610.dat flux: 6.71e-14 λ obs: 2839.42 rv: 177.93 $\Delta \lambda$ abs: 1.68 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 2.84e-14 λ obs: 2839.33 rv: 168.41 $\Delta \lambda$ abs: 1.59 $\Delta \lambda$ rel: -0.09	lwp19879.dat flux: 1.16e-13 λ obs: 2839.32 rv: 167.48 $\Delta \lambda$ abs: 1.58 $\Delta \lambda$ rel: -0.10
				lwp6906.dat flux: 8.68e-14 λ obs: 2839.38 rv: 173.70 $\Delta \lambda$ abs: 1.64 $\Delta \lambda$ rel: -0.04			
				lwp12038.dat flux: 8.53e-14 λ obs: 2839.75 rv: 212.62 $\Delta \lambda$ abs: 2.01 $\Delta \lambda$ rel: 0.33			
				lwp12044.dat flux: 5.41e-14 λ obs: 2839.15 rv: 149.80 $\Delta \lambda$ abs: 1.42 $\Delta \lambda$ rel: -0.27			

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2840.31	2837.73	FeII		lwp13856.dat flux: 1.95e-13 λ obs: 2840.60 rv: 302.68 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.00	lwp6906.dat flux: 5.82e-14 λ obs: 2840.31 rv: 272.35 $\Delta \lambda$ abs: 2.58 $\Delta \lambda$ rel: -0.29 lwp12044.dat flux: 6.46e-14 λ obs: 2840.59 rv: 302.47 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.00 lwp13904.dat flux: 1.20e-13 λ obs: 2840.40 rv: 281.43 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: -0.20		
2841.34	2838.22	FeII			lwp12044.dat flux: 3.83e-14 λ obs: 2841.34 rv: 330.21 $\Delta \lambda$ abs: 3.12 $\Delta \lambda$ rel: 0.00		
2841.81	2839.51	FeII					
2842.69	2839.80	FeII		lwp13856.dat flux: 1.26e-13 λ obs: 2842.69 rv: 305.50 $\Delta \lambda$ abs: 2.89 $\Delta \lambda$ rel: 0.00			
2843.59	2839.80	FeII				lwp7874.dat flux: 4.70e-14 λ obs: 2843.59 rv: 400.49 $\Delta \lambda$ abs: 3.79 $\Delta \lambda$ rel: 0.00	
2845.93	2843.98	FeI	lwp5842.dat flux: 6.91e-14 λ obs: 2845.93 rv: 206.34 $\Delta \lambda$ abs: 1.96 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 7.12e-14 λ obs: 2845.79 rv: 191.66 $\Delta \lambda$ abs: 1.82 $\Delta \lambda$ rel: -0.14	lwp6906.dat flux: 4.80e-14 λ obs: 2845.93 rv: 205.69 $\Delta \lambda$ abs: 1.95 $\Delta \lambda$ rel: -0.01		lwp14117.dat flux: 5.43e-14 λ obs: 2846.03 rv: 216.56 $\Delta \lambda$ abs: 2.05 $\Delta \lambda$ rel: 0.10
2846.75	2843.98	FeI			lwp6906.dat flux: 7.76e-14 λ obs: 2846.75 rv: 291.99 $\Delta \lambda$ abs: 2.77 $\Delta \lambda$ rel: 0.00		lwp19900.dat flux: 4.93e-14 λ obs: 2846.87 rv: 304.84 $\Delta \lambda$ abs: 2.89 $\Delta \lambda$ rel: 0.12

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2848.57	2845.60	FeII			lwp12033.dat flux: 1.48e-13 λ obs: 2848.57 rv: 313.86 $\Delta \lambda$ abs: 2.98 $\Delta \lambda$ rel: 0.00		
2849.98	2847.77	FeII			lwp13904.dat flux: 5.65e-14 λ obs: 2849.98 rv: 232.09 $\Delta \lambda$ abs: 2.20 $\Delta \lambda$ rel: 0.00		
2853.80	2851.72	FeII				lwp12172.dat flux: 8.39e-14 λ obs: 2853.80 rv: 218.21 $\Delta \lambda$ abs: 2.07 $\Delta \lambda$ rel: 0.00	
2854.98	2852.12	MgI					lwp14117.dat flux: 9.85e-14 λ obs: 2854.98 rv: 300.61 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.00
2855.74	2852.12	MgI					
2856.89	--	--					lwp19901.dat flux: 9.02e-14 λ obs: 2856.89 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2859.72	2856.91	FeII			lwp12044.dat flux: 7.91e-14 λ obs: 2859.72 rv: 295.49 $\Delta \lambda$ abs: 2.81 $\Delta \lambda$ rel: 0.00		
2863.07	2861.17	FeII			lwp6906.dat flux: 1.29e-13 λ obs: 2863.07 rv: 199.64 $\Delta \lambda$ abs: 1.90 $\Delta \lambda$ rel: 0.00		
2864.99	--	--					lwp19900.dat flux: 2.24e-13 λ obs: 2864.99 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2866.15	2864.12	FeII	lwp13775.dat flux: 1.59e-13 λ obs: 2865.79 rv: 174.51 $\Delta \lambda$ abs: 1.67 $\Delta \lambda$ rel: 0.00			lwp7874.dat flux: 1.21e-13 λ obs: 2866.15 rv: 212.74 $\Delta \lambda$ abs: 2.03 $\Delta \lambda$ rel: 0.36	
2867.53	2865.47	FeII	lwp13775.dat flux: 3.70e-13 λ obs: 2867.57 rv: 219.97 $\Delta \lambda$ abs: 2.10 $\Delta \lambda$ rel: 0.00		lwp1610.dat flux: 5.47e-13 λ obs: 2867.53 rv: 215.58 $\Delta \lambda$ abs: 2.06 $\Delta \lambda$ rel: -0.04		
2869.58	2867.09	CrII			lwp1610.dat flux: 2.29e-13 λ obs: 2869.58 rv: 260.75 $\Delta \lambda$ abs: 2.49 $\Delta \lambda$ rel: 0.00 lwp12033.dat flux: 9.49e-14 λ obs: 2869.81 rv: 284.91 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.23 lwp12038.dat flux: 4.76e-13 λ obs: 2869.31 rv: 232.90 $\Delta \lambda$ abs: 2.23 $\Delta \lambda$ rel: -0.27		
2870.02	2867.09	CrII			lwp12033.dat flux: 9.49e-14 λ obs: 2869.81 rv: 284.91 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.00 lwp12038.dat flux: 1.02e-13 λ obs: 2870.02 rv: 307.19 $\Delta \lambda$ abs: 2.94 $\Delta \lambda$ rel: 0.21		
2873.43	2870.43	CrII		lwp13856.dat flux: 9.69e-14 λ obs: 2873.08 rv: 277.18 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: 0.00	lwp12044.dat flux: 1.48e-13 λ obs: 2873.43 rv: 313.77 $\Delta \lambda$ abs: 3.00 $\Delta \lambda$ rel: 0.35		
2874.43	2872.26	FeII			lwp12044.dat flux: 5.15e-14 λ obs: 2874.43 rv: 226.54 $\Delta \lambda$ abs: 2.17 $\Delta \lambda$ rel: 0.00		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2875.06	2872.26	FeII			lwp12044.dat flux: 1.33e-13 λ obs: 2875.05 rv: 292.23 $\Delta \lambda$ abs: 2.80 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 6.39e-14 λ obs: 2875.06 rv: 293.07 $\Delta \lambda$ abs: 2.81 $\Delta \lambda$ rel: 0.01	
2875.97	2872.26	FeII	lwp5842.dat flux: 1.66e-13 λ obs: 2875.97 rv: 388.11 $\Delta \lambda$ abs: 3.72 $\Delta \lambda$ rel: 0.00		lwp6906.dat flux: 6.04e-14 λ obs: 2875.80 rv: 370.16 $\Delta \lambda$ abs: 3.54 $\Delta \lambda$ rel: -0.17		
					lwp13954.dat flux: 9.56e-14 λ obs: 2875.86 rv: 376.10 $\Delta \lambda$ abs: 3.60 $\Delta \lambda$ rel: -0.11		
2876.39	--	--			lwp6906.dat flux: 3.63e-14 λ obs: 2876.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2876.86	2874.85	FeII	lwp5842.dat flux: 1.03e-13 λ obs: 2876.86 rv: 209.75 $\Delta \lambda$ abs: 2.01 $\Delta \lambda$ rel: 0.00			lwp12172.dat flux: 2.84e-14 λ obs: 2876.87 rv: 210.59 $\Delta \lambda$ abs: 2.02 $\Delta \lambda$ rel: 0.01	
2877.31	2874.85	FeII					lwp19878.dat flux: 3.95e-14 λ obs: 2877.31 rv: 256.17 $\Delta \lambda$ abs: 2.45 $\Delta \lambda$ rel: 0.00
2877.76	2874.85	FeII			lwp6906.dat flux: 8.32e-14 λ obs: 2877.76 rv: 303.66 $\Delta \lambda$ abs: 2.91 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 3.53e-14 λ obs: 2877.91 rv: 318.59 $\Delta \lambda$ abs: 3.05 $\Delta \lambda$ rel: 0.14	
2878.49	2875.99	CrII					lwp14117.dat flux: 4.66e-14 λ obs: 2878.49 rv: 260.58 $\Delta \lambda$ abs: 2.50 $\Delta \lambda$ rel: 0.00
2879.23	2875.99	CrII			lwp12008.dat flux: 6.59e-14 λ obs: 2879.23 rv: 337.87 $\Delta \lambda$ abs: 3.24 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 4.51e-14 λ obs: 2879.05 rv: 319.40 $\Delta \lambda$ abs: 3.06 $\Delta \lambda$ rel: -0.18	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2879.70	2875.99	CrII		lwp13856.dat flux: 2.81e-13 λ obs: 2879.70 rv: 386.99 $\Delta \lambda$ abs: 3.71 $\Delta \lambda$ rel: 0.00			
2880.32	--	--			lwp6906.dat flux: 1.27e-13 λ obs: 2880.32 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp12197.dat flux: 1.33e-12 λ obs: 2880.69 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.37	
				lwp12008.dat flux: 9.90e-14 λ obs: 2880.66 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.34	lwp19879.dat flux: 7.39e-14 λ obs: 2880.46 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.14		
				lwp12033.dat flux: 1.04e-13 λ obs: 2880.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.27	lwp19889.dat flux: 2.92e-14 λ obs: 2880.36 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.04		
				lwp12038.dat flux: 1.24e-13 λ obs: 2880.60 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.28	lwp19902.dat flux: 6.32e-14 λ obs: 2880.44 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.12		
				lwp12044.dat flux: 1.01e-13 λ obs: 2880.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.27	lwp19911.dat flux: 3.81e-14 λ obs: 2880.30 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.02		
					lwp19911.dat flux: 2.12e-14 λ obs: 2880.57 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.25		
2880.81	--	--	lwp13775.dat flux: 3.58e-13 λ obs: 2880.93 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp6906.dat flux: 3.96e-14 λ obs: 2880.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.12	lwp12197.dat flux: 1.33e-12 λ obs: 2880.69 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.24		
				lwp12008.dat flux: 9.90e-14 λ obs: 2880.66 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.28	lwp19878.dat flux: 4.74e-14 λ obs: 2881.04 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.10		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2880.81	--	--			lwp12033.dat flux: 1.04e-13 λ obs: 2880.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.34		lwp19879.dat flux: 7.39e-14 λ obs: 2880.46 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.47
					lwp12033.dat flux: 4.19e-14 λ obs: 2881.12 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.19		lwp19902.dat flux: 6.32e-14 λ obs: 2880.44 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.49
					lwp12038.dat flux: 1.24e-13 λ obs: 2880.60 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.34		lwp19911.dat flux: 2.12e-14 λ obs: 2880.57 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.36
					lwp12044.dat flux: 1.01e-13 λ obs: 2880.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.34		
2882.64	2880.76	FeII			lwp12038.dat flux: 6.83e-14 λ obs: 2882.64 rv: 196.51 $\Delta \lambda$ abs: 1.89 $\Delta \lambda$ rel: 0.00		lwp19910.dat flux: 4.29e-14 λ obs: 2882.64 rv: 195.67 $\Delta \lambda$ abs: 1.88 $\Delta \lambda$ rel: -0.01
2883.67	2880.86	CrII				lwp14062.dat flux: 3.41e-14 λ obs: 2883.67 rv: 292.40 $\Delta \lambda$ abs: 2.81 $\Delta \lambda$ rel: 0.00	lwp19878.dat flux: 2.36e-14 λ obs: 2883.54 rv: 279.18 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: -0.13
							lwp19888.dat flux: 2.19e-14 λ obs: 2883.55 rv: 279.61 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: -0.12
2884.32	2882.19	FeII					lwp19878.dat flux: 2.21e-14 λ obs: 2884.32 rv: 222.02 $\Delta \lambda$ abs: 2.13 $\Delta \lambda$ rel: 0.00
							lwp19888.dat flux: 2.36e-14 λ obs: 2884.28 rv: 218.06 $\Delta \lambda$ abs: 2.09 $\Delta \lambda$ rel: -0.04

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2884.85	2882.19	FeII	lwp5842.dat flux: 1.49e-13 λ obs: 2884.85 rv: 277.30 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 3.59e-14 λ obs: 2884.76 rv: 267.82 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: -0.09	lwp12033.dat flux: 6.60e-14 λ obs: 2884.90 rv: 282.30 $\Delta \lambda$ abs: 2.71 $\Delta \lambda$ rel: 0.05 lwp12044.dat flux: 3.10e-14 λ obs: 2884.84 rv: 275.42 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: -0.02		
2885.90	2882.19	FeII					
2886.49	2884.78	FeII					lwp19878.dat flux: 1.28e-14 λ obs: 2886.49 rv: 178.13 $\Delta \lambda$ abs: 1.71 $\Delta \lambda$ rel: 0.00
2887.14	2884.78	FeII					lwp19878.dat flux: 1.57e-14 λ obs: 2887.14 rv: 245.64 $\Delta \lambda$ abs: 2.36 $\Delta \lambda$ rel: 0.00
2887.60	2884.78	FeII					
2888.44	2884.78	FeII				lwp14062.dat flux: 8.16e-14 λ obs: 2888.44 rv: 380.51 $\Delta \lambda$ abs: 3.66 $\Delta \lambda$ rel: 0.00	
2889.12	--	--		lwp13856.dat flux: 9.30e-14 λ obs: 2889.00 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp7874.dat flux: 4.32e-14 λ obs: 2889.12 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.13	
2891.45	2889.69	FeII			lwp1610.dat flux: 1.83e-13 λ obs: 2891.45 rv: 183.23 $\Delta \lambda$ abs: 1.76 $\Delta \lambda$ rel: 0.00		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2892.65	2889.69	FeII					lwp12197.dat flux: 1.95e-13 λ obs: 2892.65 rv: 307.19 $\Delta \lambda$ abs: 2.96 $\Delta \lambda$ rel: 0.00
2893.44	2889.69	FeII				lwp14062.dat flux: 7.95e-14 λ obs: 2893.18 rv: 362.83 $\Delta \lambda$ abs: 3.49 $\Delta \lambda$ rel: 0.00	lwp12197.dat flux: 2.66e-13 λ obs: 2893.44 rv: 389.21 $\Delta \lambda$ abs: 3.75 $\Delta \lambda$ rel: 0.25 lwp19888.dat flux: 1.12e-13 λ obs: 2893.09 rv: 353.70 $\Delta \lambda$ abs: 3.41 $\Delta \lambda$ rel: -0.09
2895.01	2892.83	FeII	lwp13775.dat flux: 1.45e-13 λ obs: 2895.01 rv: 226.30 $\Delta \lambda$ abs: 2.18 $\Delta \lambda$ rel: 0.00				
2897.95	--	--					lwp19888.dat flux: 1.13e-13 λ obs: 2897.95 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2899.24	--	--			lwp12038.dat flux: 2.16e-13 λ obs: 2899.24 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2900.00	--	--			lwp12008.dat flux: 7.82e-14 λ obs: 2900.00 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2900.55	--	--					lwp19911.dat flux: 1.49e-13 λ obs: 2900.55 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwr11781.dat flux: 2.45e-13 λ obs: 2900.71 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.17

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2903.37	--	--				lwp7874.dat flux: 1.26e-13 λ obs: 2903.37 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2904.78	--	--					lwp19878.dat flux: 4.04e-14 λ obs: 2904.78 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2905.51	--	--					
2906.34	--	--					lwp19889.dat flux: 5.30e-14 λ obs: 2906.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2907.18	--	--					lwp19878.dat flux: 5.05e-14 λ obs: 2907.18 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2910.31	2907.86	FeII			lwp12038.dat flux: 2.15e-13 λ obs: 2910.31 rv: 253.49 $\Delta \lambda$ abs: 2.46 $\Delta \lambda$ rel: 0.00 lwp12044.dat flux: 9.81e-14 λ obs: 2910.13 rv: 234.72 $\Delta \lambda$ abs: 2.28 $\Delta \lambda$ rel: -0.18	lwp19911.dat flux: 6.70e-14 λ obs: 2910.49 rv: 271.75 $\Delta \lambda$ abs: 2.63 $\Delta \lambda$ rel: 0.18	
2911.39	2907.86	FeII			lwp12044.dat flux: 7.90e-14 λ obs: 2911.39 rv: 364.72 $\Delta \lambda$ abs: 3.54 $\Delta \lambda$ rel: 0.00	lwp19911.dat flux: 2.87e-14 λ obs: 2911.38 rv: 363.89 $\Delta \lambda$ abs: 3.53 $\Delta \lambda$ rel: -0.01	
2912.21	2909.54	FeII	lwp5842.dat flux: 1.35e-13 λ obs: 2912.21 rv: 275.09 $\Delta \lambda$ abs: 2.67 $\Delta \lambda$ rel: 0.00				lwp19911.dat flux: 2.09e-14 λ obs: 2912.16 rv: 269.43 $\Delta \lambda$ abs: 2.61 $\Delta \lambda$ rel: -0.05

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2913.09	2909.54		FeII			lwp13954.dat flux: 2.80e-13 λ obs: 2913.09 rv: 365.54 $\Delta \lambda$ abs: 3.55 $\Delta \lambda$ rel: 0.00		
2913.50	2909.54		FeII				lwp19901.dat flux: 1.48e-13 λ obs: 2913.50 rv: 407.40 $\Delta \lambda$ abs: 3.95 $\Delta \lambda$ rel: 0.00 lwp19911.dat flux: 2.52e-14 λ obs: 2913.81 rv: 440.18 $\Delta \lambda$ abs: 4.27 $\Delta \lambda$ rel: 0.32	
2914.64	--	--				lwp1610.dat flux: 3.32e-14 λ obs: 2914.64 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp19888.dat flux: 9.93e-14 λ obs: 2914.62 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.02	
2915.34	--	--				lwp13904.dat flux: 5.45e-14 λ obs: 2915.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2916.34	--	--				lwp12008.dat flux: 6.28e-14 λ obs: 2916.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp14062.dat flux: 3.63e-14 λ obs: 2916.54 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.20	
2916.91	--	--				lwp12008.dat flux: 3.51e-14 λ obs: 2916.91 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp14062.dat flux: 3.63e-14 λ obs: 2916.54 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.37	lwr11781.dat flux: 9.93e-14 λ obs: 2916.83 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.08
2917.44	--	--				lwp12008.dat flux: 3.66e-14 λ obs: 2917.44 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp12033.dat flux: 1.35e-13 λ obs: 2917.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.37		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2917.44	--	--			lwp12038.dat flux: 8.60e-14 λ obs: 2917.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.02		
2917.95	2916.15	FeII			lwp12008.dat flux: 4.37e-14 λ obs: 2917.95 rv: 184.98 $\Delta \lambda$ abs: 1.80 $\Delta \lambda$ rel: 0.00 lwp12033.dat flux: 1.35e-13 λ obs: 2917.81 rv: 170.69 $\Delta \lambda$ abs: 1.66 $\Delta \lambda$ rel: -0.14		
2918.62	2916.15	FeII	lwp5842.dat flux: 6.34e-14 λ obs: 2918.94 rv: 287.03 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 9.74e-14 λ obs: 2918.83 rv: 275.62 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: -0.11	lwp13904.dat flux: 1.22e-13 λ obs: 2918.80 rv: 272.53 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: -0.14		lwp19911.dat flux: 7.92e-14 λ obs: 2918.62 rv: 254.22 $\Delta \lambda$ abs: 2.47 $\Delta \lambda$ rel: -0.32
2919.07	2916.15	FeII	lwp5842.dat flux: 6.34e-14 λ obs: 2918.94 rv: 287.03 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 9.74e-14 λ obs: 2918.83 rv: 275.62 $\Delta \lambda$ abs: 2.68 $\Delta \lambda$ rel: -0.11	lwp1610.dat flux: 6.61e-14 λ obs: 2919.07 rv: 300.71 $\Delta \lambda$ abs: 2.92 $\Delta \lambda$ rel: 0.13 lwp13904.dat flux: 1.22e-13 λ obs: 2918.80 rv: 272.53 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: -0.14	lwp7874.dat flux: 6.38e-14 λ obs: 2919.11 rv: 304.21 $\Delta \lambda$ abs: 2.96 $\Delta \lambda$ rel: 0.17	
2919.48	2916.15	FeII			lwp1610.dat flux: 6.95e-14 λ obs: 2919.48 rv: 342.68 $\Delta \lambda$ abs: 3.33 $\Delta \lambda$ rel: 0.00 lwp12038.dat flux: 4.39e-14 λ obs: 2919.79 rv: 374.38 $\Delta \lambda$ abs: 3.64 $\Delta \lambda$ rel: 0.31	lwp7874.dat flux: 6.38e-14 λ obs: 2919.11 rv: 304.21 $\Delta \lambda$ abs: 2.96 $\Delta \lambda$ rel: -0.37	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2920.47	2917.47	FeII	lwp5842.dat flux: 8.34e-14 λ obs: 2920.59 rv: 321.14 $\Delta \lambda$ abs: 3.12 $\Delta \lambda$ rel: 0.00		lwp1610.dat flux: 5.79e-14 λ obs: 2920.47 rv: 309.09 $\Delta \lambda$ abs: 3.01 $\Delta \lambda$ rel: -0.12 lwp12044.dat flux: 8.38e-14 λ obs: 2920.42 rv: 304.17 $\Delta \lambda$ abs: 2.96 $\Delta \lambda$ rel: -0.17 lwp13904.dat flux: 5.24e-14 λ obs: 2920.23 rv: 284.11 $\Delta \lambda$ abs: 2.76 $\Delta \lambda$ rel: -0.36		lwp19888.dat flux: 4.21e-14 λ obs: 2920.20 rv: 281.55 $\Delta \lambda$ abs: 2.74 $\Delta \lambda$ rel: -0.39
2921.51	--	--			lwp1610.dat flux: 4.61e-14 λ obs: 2921.51 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp14062.dat flux: 4.35e-14 λ obs: 2921.62 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.11	
2922.07	--	--			lwp13904.dat flux: 1.48e-13 λ obs: 2922.07 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp19878.dat flux: 1.61e-13 λ obs: 2922.20 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.13
2922.83	--	--					lwp14117.dat flux: 1.10e-13 λ obs: 2922.83 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2927.97	--	--			lwp12008.dat flux: 8.51e-14 λ obs: 2927.97 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2929.50	2926.58	FeII	lwp5842.dat flux: 4.06e-13 λ obs: 2929.27 rv: 275.34 $\Delta \lambda$ abs: 2.69 $\Delta \lambda$ rel: 0.00 lwp13775.dat flux: 4.69e-13 λ obs: 2929.25 rv: 272.79 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: -0.02	lwp13856.dat flux: 3.31e-13 λ obs: 2929.24 rv: 272.36 $\Delta \lambda$ abs: 2.66 $\Delta \lambda$ rel: -0.03	lwp1610.dat flux: 1.46e-13 λ obs: 2929.50 rv: 298.92 $\Delta \lambda$ abs: 2.92 $\Delta \lambda$ rel: 0.23 lwp6906.dat flux: 1.52e-13 λ obs: 2929.45 rv: 293.59 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.18	lwp7874.dat flux: 1.22e-13 λ obs: 2929.45 rv: 293.69 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.18	lwp19878.dat flux: 3.78e-14 λ obs: 2929.45 rv: 293.39 $\Delta \lambda$ abs: 2.86 $\Delta \lambda$ rel: 0.18

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2929.50	2926.58	FeII			lwp12008.dat flux: 1.66e-13 λ obs: 2929.61 rv: 310.60 $\Delta \lambda$ abs: 3.03 $\Delta \lambda$ rel: 0.34 lwp12008.dat flux: 1.09e-13 λ obs: 2929.72 rv: 321.57 $\Delta \lambda$ abs: 3.14 $\Delta \lambda$ rel: 0.45 lwp12033.dat flux: 9.08e-14 λ obs: 2929.18 rv: 265.91 $\Delta \lambda$ abs: 2.59 $\Delta \lambda$ rel: -0.09 lwp13904.dat flux: 1.90e-13 λ obs: 2929.31 rv: 279.45 $\Delta \lambda$ abs: 2.73 $\Delta \lambda$ rel: 0.04 lwp13954.dat flux: 1.57e-13 λ obs: 2929.40 rv: 288.88 $\Delta \lambda$ abs: 2.82 $\Delta \lambda$ rel: 0.13		
2931.41	--	--	lwp13775.dat flux: 1.49e-13 λ obs: 2931.41 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 7.92e-14 λ obs: 2931.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.06	lwp13904.dat flux: 7.71e-14 λ obs: 2931.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.05		
2933.35	--	--					lwp19910.dat flux: 1.08e-13 λ obs: 2933.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2935.05	--	--			lwp6906.dat flux: 1.06e-13 λ obs: 2935.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2938.71	--	--					lwr11781.dat flux: 8.84e-14 λ obs: 2938.71 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2939.23	--	--		lwp13775.dat flux: 2.12e-13 λ obs: 2939.23 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.46e-13 λ obs: 2939.16 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.07			
2941.84	2939.51	FeII		lwp13775.dat flux: 2.32e-13 λ obs: 2941.84 rv: 238.20 $\Delta \lambda$ abs: 2.33 $\Delta \lambda$ rel: 0.00				lwr11781.dat flux: 7.66e-14 λ obs: 2941.65 rv: 218.39 $\Delta \lambda$ abs: 2.14 $\Delta \lambda$ rel: -0.19
2942.42	2939.51	FeII			lwp12033.dat flux: 5.96e-14 λ obs: 2942.42 rv: 296.78 $\Delta \lambda$ abs: 2.91 $\Delta \lambda$ rel: 0.00			lwp19900.dat flux: 2.38e-13 λ obs: 2942.39 rv: 294.54 $\Delta \lambda$ abs: 2.89 $\Delta \lambda$ rel: -0.02 lwp19910.dat flux: 6.03e-14 λ obs: 2942.53 rv: 308.81 $\Delta \lambda$ abs: 3.03 $\Delta \lambda$ rel: 0.12 lwp19911.dat flux: 4.53e-14 λ obs: 2942.41 rv: 296.68 $\Delta \lambda$ abs: 2.91 $\Delta \lambda$ rel: 0.00
2943.12	2939.51	FeII						lwp12197.dat flux: 4.75e-13 λ obs: 2943.12 rv: 369.14 $\Delta \lambda$ abs: 3.62 $\Delta \lambda$ rel: 0.00
2943.78	--	--						lwp12197.dat flux: 3.21e-13 λ obs: 2943.78 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
2944.59	--	--			lwp13954.dat flux: 6.70e-14 λ obs: 2944.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			lwp12197.dat flux: 3.47e-13 λ obs: 2944.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.36
2945.22	--	--			lwp13904.dat flux: 8.75e-14 λ obs: 2945.33 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 5.87e-14 λ obs: 2945.22 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.11	lwp12197.dat flux: 3.47e-13 λ obs: 2944.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.38	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2945.93	--	--			lwp13954.dat flux: 2.80e-14 λ obs: 2945.66 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp12172.dat flux: 8.62e-14 λ obs: 2945.93 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.27	lwp19902.dat flux: 4.65e-14 λ obs: 2945.84 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.18
2947.22	2945.26	FeII	lwp5842.dat flux: 1.55e-13 λ obs: 2947.22 rv: 199.14 $\Delta \lambda$ abs: 1.96 $\Delta \lambda$ rel: 0.00 lwp13775.dat flux: 1.88e-13 λ obs: 2947.09 rv: 186.41 $\Delta \lambda$ abs: 1.83 $\Delta \lambda$ rel: -0.13		lwp6906.dat flux: 8.03e-14 λ obs: 2947.21 rv: 198.72 $\Delta \lambda$ abs: 1.95 $\Delta \lambda$ rel: 0.00 lwp12038.dat flux: 1.23e-13 λ obs: 2947.26 rv: 203.32 $\Delta \lambda$ abs: 2.00 $\Delta \lambda$ rel: 0.04 lwp13904.dat flux: 6.29e-14 λ obs: 2947.03 rv: 179.99 $\Delta \lambda$ abs: 1.77 $\Delta \lambda$ rel: -0.19		lwp19902.dat flux: 1.02e-13 λ obs: 2947.57 rv: 234.68 $\Delta \lambda$ abs: 2.30 $\Delta \lambda$ rel: 0.35
2947.80	2945.26	FeII			lwp13954.dat flux: 6.06e-14 λ obs: 2947.80 rv: 259.02 $\Delta \lambda$ abs: 2.54 $\Delta \lambda$ rel: 0.00		lwp19878.dat flux: 5.16e-14 λ obs: 2947.72 rv: 249.97 $\Delta \lambda$ abs: 2.45 $\Delta \lambda$ rel: -0.09 lwp19902.dat flux: 1.02e-13 λ obs: 2947.57 rv: 234.68 $\Delta \lambda$ abs: 2.30 $\Delta \lambda$ rel: -0.24
2948.50	2945.26	FeII			lwp6906.dat flux: 9.64e-14 λ obs: 2948.50 rv: 329.92 $\Delta \lambda$ abs: 3.24 $\Delta \lambda$ rel: 0.00 lwp12038.dat flux: 6.11e-14 λ obs: 2948.41 rv: 321.07 $\Delta \lambda$ abs: 3.15 $\Delta \lambda$ rel: -0.09 lwp13904.dat flux: 7.01e-14 λ obs: 2948.90 rv: 370.65 $\Delta \lambda$ abs: 3.64 $\Delta \lambda$ rel: 0.40		lwp12197.dat flux: 3.36e-13 λ obs: 2948.45 rv: 324.33 $\Delta \lambda$ abs: 3.18 $\Delta \lambda$ rel: -0.05 lwp14117.dat flux: 2.18e-14 λ obs: 2948.81 rv: 361.90 $\Delta \lambda$ abs: 3.55 $\Delta \lambda$ rel: 0.31

LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5		
2949.55	--	--				lwp12008.dat flux: 1.23e-13 λ obs: 2949.55 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp13954.dat flux: 7.85e-14 λ obs: 2949.79 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.24				
2950.29	--	--		lwp5842.dat flux: 8.94e-14 λ obs: 2950.29 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp5842.dat flux: 4.69e-14 λ obs: 2950.57 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.28			lwp14062.dat flux: 2.20e-13 λ obs: 2950.22 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.07			
2950.86	--	--		lwp5842.dat flux: 4.69e-14 λ obs: 2950.57 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp1610.dat flux: 5.68e-14 λ obs: 2950.86 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.29	lwp12172.dat flux: 7.11e-14 λ obs: 2950.88 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.31	lwp14117.dat flux: 9.73e-14 λ obs: 2951.08 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.51 lwp19879.dat flux: 7.95e-14 λ obs: 2950.70 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.13		
2951.48	--	--				lwp13954.dat flux: 4.41e-14 λ obs: 2951.48 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp19910.dat flux: 5.62e-14 λ obs: 2951.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.11		
2952.20	--	--				lwp12008.dat flux: 7.53e-14 λ obs: 2952.20 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2953.67	--	--		lwp5842.dat flux: 7.41e-14 λ obs: 2953.56 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp1610.dat flux: 6.95e-14 λ obs: 2953.67 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.11		lwp19878.dat flux: 4.99e-14 λ obs: 2953.59 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.04		

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2954.27	--	--			lwp12033.dat flux: 3.68e-14 λ obs: 2954.27 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2955.32	--	--			lwp12033.dat flux: 7.76e-14 λ obs: 2955.32 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2956.66	2953.77	FeII	lwp13775.dat flux: 2.01e-13 λ obs: 2956.40 rv: 267.03 $\Delta \lambda$ abs: 2.63 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.53e-13 λ obs: 2956.34 rv: 260.83 $\Delta \lambda$ abs: 2.57 $\Delta \lambda$ rel: -0.06	lwp1610.dat flux: 8.75e-14 λ obs: 2956.66 rv: 293.54 $\Delta \lambda$ abs: 2.89 $\Delta \lambda$ rel: 0.26	lwp14062.dat flux: 4.21e-14 λ obs: 2956.42 rv: 268.96 $\Delta \lambda$ abs: 2.65 $\Delta \lambda$ rel: 0.02	lwp19901.dat flux: 1.37e-13 λ obs: 2956.98 rv: 325.33 $\Delta \lambda$ abs: 3.20 $\Delta \lambda$ rel: 0.57
					lwp6906.dat flux: 9.40e-14 λ obs: 2956.60 rv: 286.72 $\Delta \lambda$ abs: 2.82 $\Delta \lambda$ rel: 0.19		
					lwp13954.dat flux: 5.32e-14 λ obs: 2956.56 rv: 283.07 $\Delta \lambda$ abs: 2.79 $\Delta \lambda$ rel: 0.16		
2957.22	2953.77	FeII			lwp12008.dat flux: 3.91e-14 λ obs: 2957.22 rv: 349.80 $\Delta \lambda$ abs: 3.44 $\Delta \lambda$ rel: 0.00		lwp19901.dat flux: 1.37e-13 λ obs: 2956.98 rv: 325.33 $\Delta \lambda$ abs: 3.20 $\Delta \lambda$ rel: -0.24
2957.74	2953.77	FeII					lwp19888.dat flux: 3.04e-14 λ obs: 2957.74 rv: 402.32 $\Delta \lambda$ abs: 3.96 $\Delta \lambda$ rel: 0.00
2960.13	--	--			lwp13904.dat flux: 1.57e-13 λ obs: 2960.13 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp19910.dat flux: 3.34e-14 λ obs: 2960.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.08
2964.05	2961.27	FeII	lwp13775.dat flux: 3.79e-13 λ obs: 2964.05 rv: 281.54 $\Delta \lambda$ abs: 2.78 $\Delta \lambda$ rel: 0.00				

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2965.07	2961.27	FeII			lwp12008.dat flux: 1.06e-13 λ obs: 2965.07 rv: 384.88 $\Delta \lambda$ abs: 3.80 $\Delta \lambda$ rel: 0.00 lwp12033.dat flux: 1.26e-13 λ obs: 2965.12 rv: 390.04 $\Delta \lambda$ abs: 3.85 $\Delta \lambda$ rel: 0.05		
2967.64	2964.66	FeII		lwp13856.dat flux: 1.30e-13 λ obs: 2967.64 rv: 302.07 $\Delta \lambda$ abs: 2.99 $\Delta \lambda$ rel: 0.00		lwp19900.dat flux: 1.61e-13 λ obs: 2967.61 rv: 298.83 $\Delta \lambda$ abs: 2.95 $\Delta \lambda$ rel: -0.03	
2968.24	2964.66	FeII			lwp12008.dat flux: 3.16e-13 λ obs: 2968.24 rv: 362.28 $\Delta \lambda$ abs: 3.58 $\Delta \lambda$ rel: 0.00		
2969.31	--	--			lwp12008.dat flux: 5.05e-14 λ obs: 2969.31 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp19878.dat flux: 4.05e-14 λ obs: 2969.19 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.12 lwr11781.dat flux: 8.94e-14 λ obs: 2969.23 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.08	
2971.15	--	--			lwp12038.dat flux: 9.17e-14 λ obs: 2971.15 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2972.31	2970.51	FeII					
2973.75	2970.51	FeII			lwp12044.dat flux: 1.25e-13 λ obs: 2973.75 rv: 326.52 $\Delta \lambda$ abs: 3.23 $\Delta \lambda$ rel: 0.00	lwp14117.dat flux: 3.72e-14 λ obs: 2973.38 rv: 289.56 $\Delta \lambda$ abs: 2.87 $\Delta \lambda$ rel: -0.37	

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2973.75	2970.51	FeII					lwp19889.dat flux: 5.55e-14 λ obs: 2973.53 rv: 304.70 $\Delta \lambda$ abs: 3.02 $\Delta \lambda$ rel: -0.22
2974.51	2970.51	FeII			lwp13954.dat flux: 1.89e-13 λ obs: 2974.51 rv: 403.77 $\Delta \lambda$ abs: 4.00 $\Delta \lambda$ rel: 0.00		
2975.42	--	--			lwp12038.dat flux: 7.79e-14 λ obs: 2975.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2976.13	--	--			lwp1610.dat flux: 2.08e-13 λ obs: 2976.13 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp12044.dat flux: 1.84e-13 λ obs: 2976.48 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.36		
2977.64	--	--		lwp13856.dat flux: 1.40e-13 λ obs: 2977.53 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp12172.dat flux: 1.52e-13 λ obs: 2977.64 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.11	
2978.87	--	--	lwp13775.dat flux: 1.42e-13 λ obs: 2978.87 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2979.91	--	--	lwp13775.dat flux: 2.77e-13 λ obs: 2979.91 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				lwp19888.dat flux: 2.96e-13 λ obs: 2979.78 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.14
2980.39	--	--					lwp19900.dat flux: 2.94e-13 λ obs: 2980.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

LINE	λ RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2980.88	--	--					lwp14117.dat flux: 8.00e-14 λ obs: 2980.88 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp19902.dat flux: 1.80e-13 λ obs: 2981.23 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.35
2981.73	2979.35	FeII	lwp5842.dat flux: 1.13e-13 λ obs: 2981.73 rv: 239.34 $\Delta \lambda$ abs: 2.38 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.41e-13 λ obs: 2982.07 rv: 273.98 $\Delta \lambda$ abs: 2.72 $\Delta \lambda$ rel: 0.34			
2982.35	--	--	lwp5842.dat flux: 1.98e-13 λ obs: 2982.35 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp13775.dat flux: 1.70e-13 λ obs: 2982.14 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.21	lwp13856.dat flux: 1.41e-13 λ obs: 2982.07 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.28	lwp13954.dat flux: 8.48e-14 λ obs: 2982.14 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.21	lwp7874.dat flux: 5.94e-14 λ obs: 2982.26 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.08	
2983.21	--	--	lwp5842.dat flux: 1.35e-13 λ obs: 2983.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp13775.dat flux: 1.84e-13 λ obs: 2983.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.16		lwp12008.dat flux: 6.98e-14 λ obs: 2982.87 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.34		
2983.97	--	--	lwp13775.dat flux: 1.45e-13 λ obs: 2983.97 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2985.32	--	--	lwp13775.dat flux: 2.56e-13 λ obs: 2985.32 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp13904.dat flux: 8.18e-14 λ obs: 2985.11 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.21		

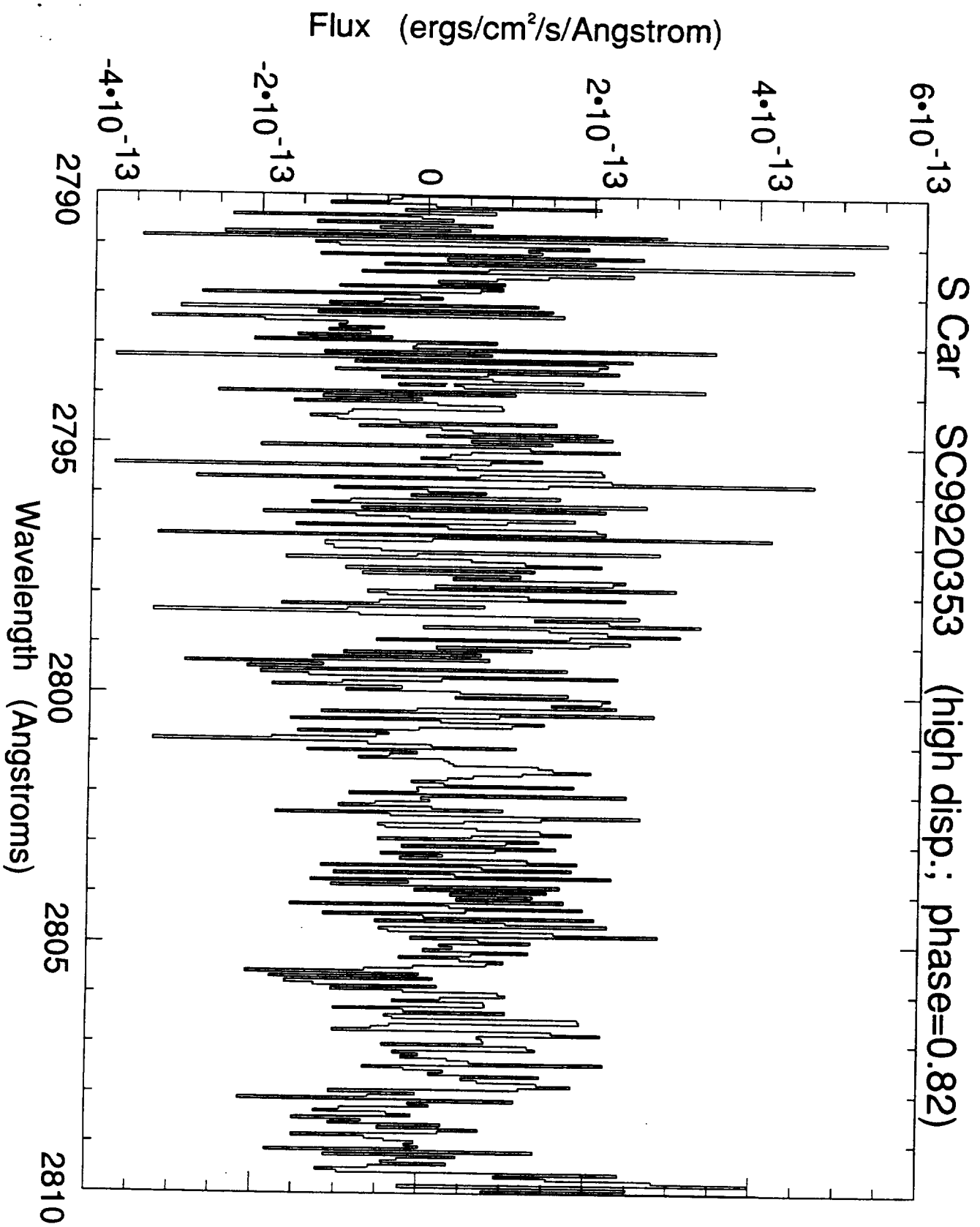
LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2985.32	--	--				lwp13954.dat flux: 1.36e-13 λ obs: 2985.25 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.07		
2985.88	--	--				lwp6906.dat flux: 8.32e-14 λ obs: 2985.88 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2986.49	--	--				lwp12008.dat flux: 4.07e-14 λ obs: 2986.49 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2987.24	--	--			lwp13856.dat flux: 9.57e-14 λ obs: 2987.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp1610.dat flux: 7.55e-14 λ obs: 2987.24 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.19	lwp14062.dat flux: 2.87e-14 λ obs: 2987.29 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.13	
						lwp12008.dat flux: 9.99e-14 λ obs: 2987.15 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.27		
2987.93	--	--		lwp5842.dat flux: 2.32e-13 λ obs: 2988.28 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.26e-13 λ obs: 2988.12 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.16	lwp1610.dat flux: 1.51e-13 λ obs: 2987.93 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.35	lwp14062.dat flux: 1.93e-14 λ obs: 2987.78 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.50	
2988.63	--	--		lwp5842.dat flux: 2.32e-13 λ obs: 2988.28 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.48e-13 λ obs: 2988.63 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.35		lwp14062.dat flux: 4.06e-14 λ obs: 2988.33 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.06	
2989.21	--	--		lwp5842.dat flux: 1.46e-13 λ obs: 2989.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp12008.dat flux: 5.73e-14 λ obs: 2989.16 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.04		
2989.71	--	--				lwp12008.dat flux: 2.94e-14 λ obs: 2989.71 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		

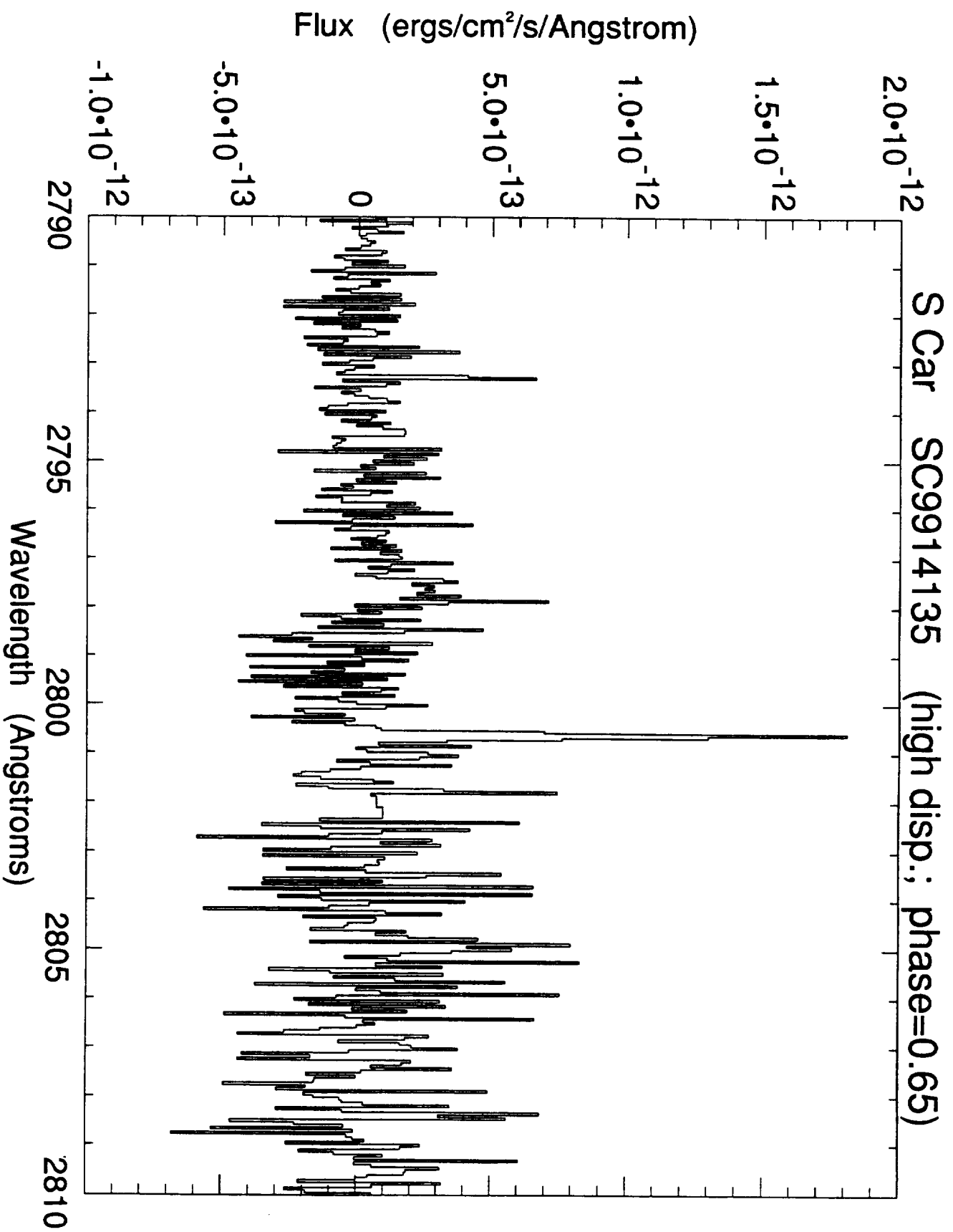
LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2990.63	--	--		lwp5842.dat flux: 2.74e-13 λ obs: 2990.63 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp13856.dat flux: 1.46e-13 λ obs: 2990.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.24	lwp6906.dat flux: 1.44e-13 λ obs: 2990.63 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.01		lwp19879.dat flux: 6.89e-14 λ obs: 2990.86 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.23
				lwp13775.dat flux: 1.84e-13 λ obs: 2990.46 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.17		lwp12008.dat flux: 2.09e-13 λ obs: 2990.73 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.10		
						lwp13954.dat flux: 1.20e-13 λ obs: 2990.54 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.10		
2991.81	--	--				lwp12008.dat flux: 9.22e-14 λ obs: 2991.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp19879.dat flux: 5.48e-14 λ obs: 2991.91 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.10
						lwp13904.dat flux: 2.27e-13 λ obs: 2991.94 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.13		
2992.41	--	--					lwp14062.dat flux: 1.06e-13 λ obs: 2992.41 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp19879.dat flux: 2.69e-14 λ obs: 2992.44 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.03
2993.83	--	--				lwp12033.dat flux: 1.44e-13 λ obs: 2993.83 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp19879.dat flux: 2.32e-14 λ obs: 2994.14 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.31
2994.48	--	--		lwp5842.dat flux: 1.37e-13 λ obs: 2994.48 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwp6906.dat flux: 1.20e-13 λ obs: 2994.53 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.06		lwp19879.dat flux: 2.32e-14 λ obs: 2994.14 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.33
						lwp13904.dat flux: 1.09e-13 λ obs: 2994.45 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.03		lwp19888.dat flux: 2.24e-14 λ obs: 2994.33 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.15

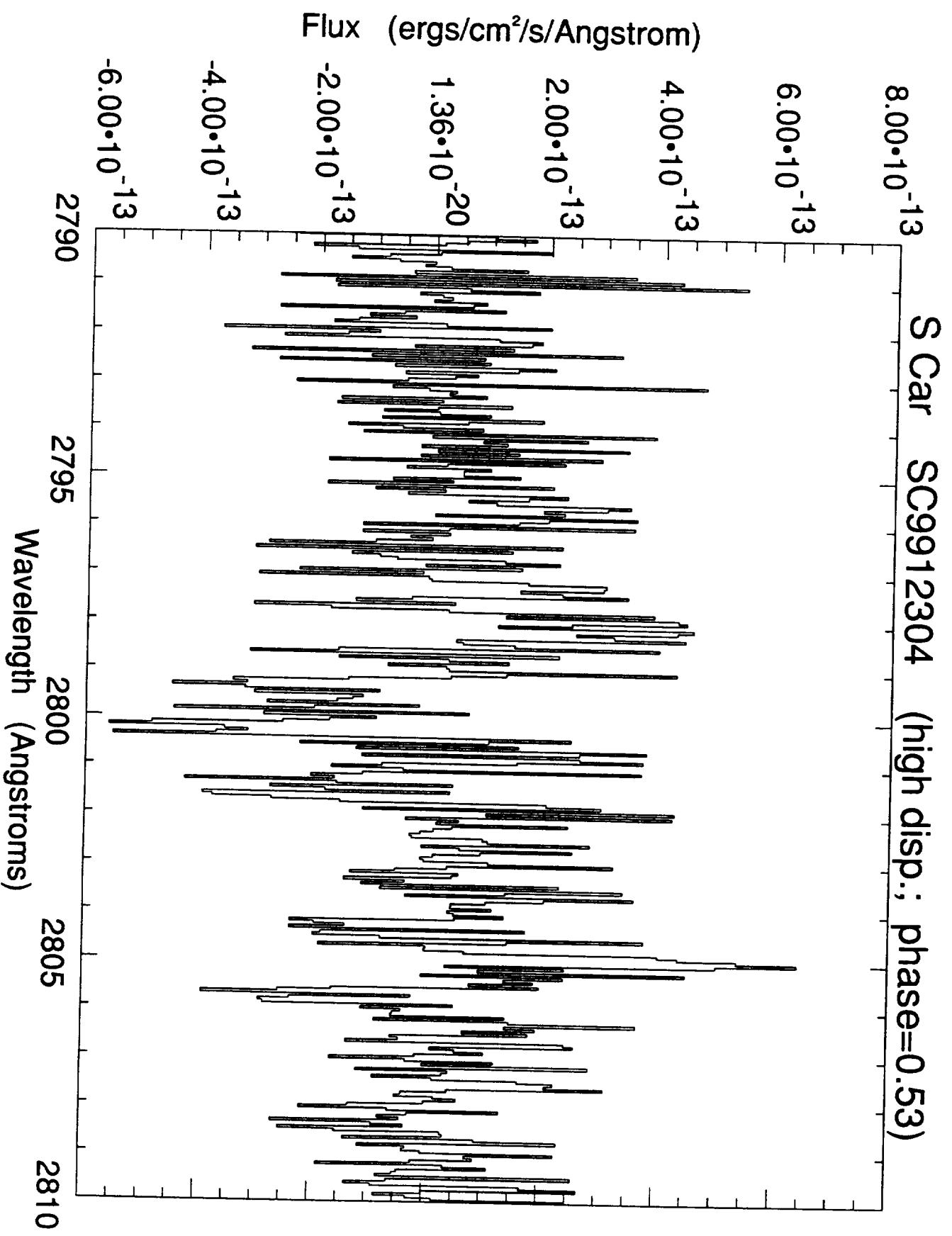
LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
2996.55	--	--				lwp12008.dat flux: 8.12e-14 λ obs: 2996.55 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2997.48	--	--		lwp5842.dat flux: 7.96e-14 λ obs: 2997.48 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2998.05	--	--				lwp12038.dat flux: 1.17e-13 λ obs: 2998.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwr11781.dat flux: 1.94e-13 λ obs: 2998.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.34
2998.69	--	--				lwp12038.dat flux: 6.94e-14 λ obs: 2998.69 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		lwr11781.dat flux: 1.94e-13 λ obs: 2998.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.29
2999.25	--	--				lwp12038.dat flux: 9.87e-14 λ obs: 2999.25 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
2999.94	--	--						lwp19901.dat flux: 7.93e-14 λ obs: 2999.94 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
3002.62	--	--				lwp14062.dat flux: 6.04e-14 λ obs: 3002.62 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
3005.08	--	--				lwp6906.dat flux: 8.22e-14 λ obs: 3005.08 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
3006.28	--	--				lwp6906.dat flux: 1.15e-13 λ obs: 3006.28 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		

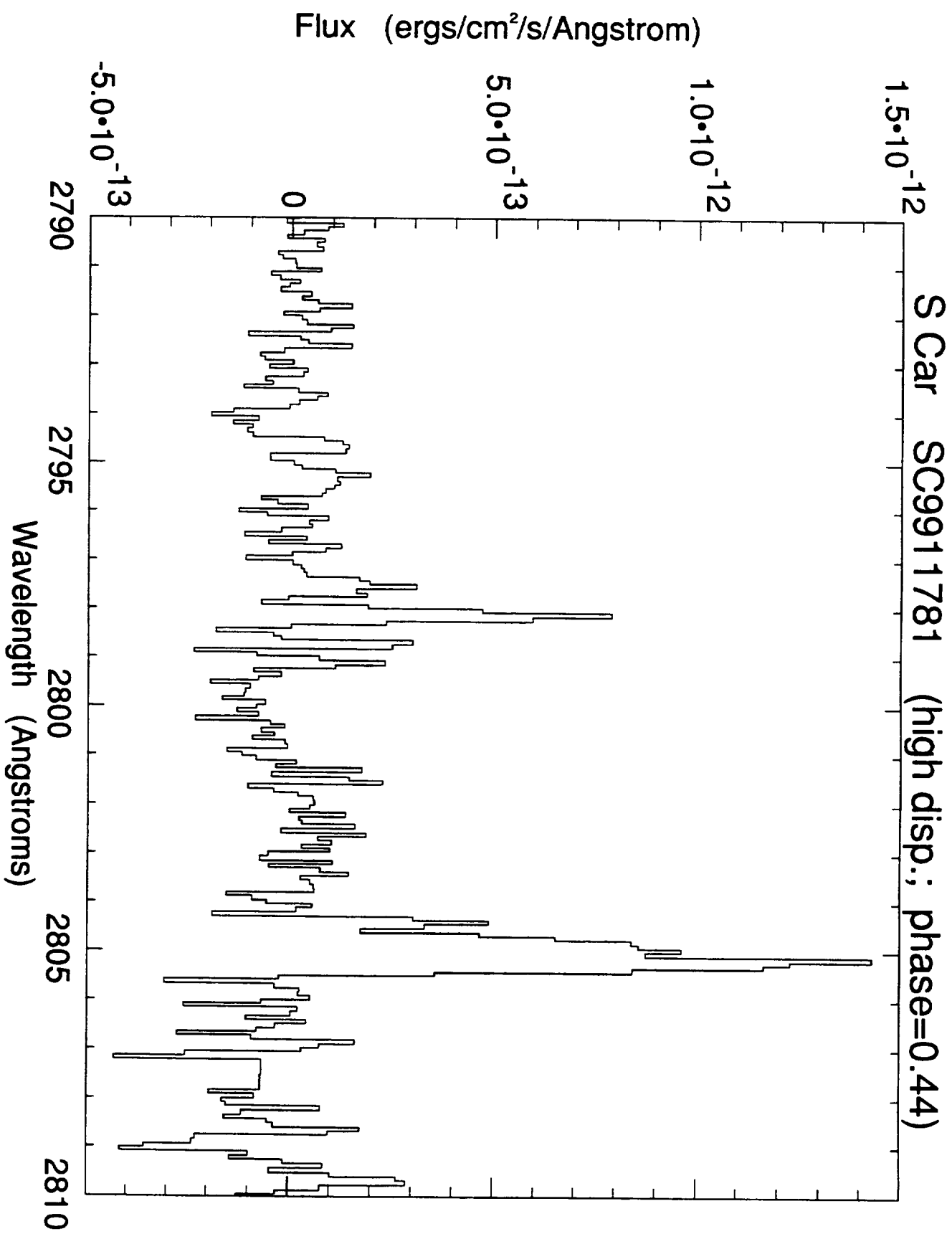
LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
3011.03	--	--	--					lwp19888.dat flux: 8.64e-14 λ obs: 3011.03 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
3017.39	--	--	--		lwp13856.dat flux: 1.23e-13 λ obs: 3017.14 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp6906.dat flux: 3.84e-13 λ obs: 3017.39 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26		
3018.45	--	--	--					lwp19911.dat flux: 1.33e-13 λ obs: 3018.45 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
3020.81	--	--	--			lwp12008.dat flux: 1.23e-13 λ obs: 3020.81 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		
3021.96	--	--	--					lwp19879.dat flux: 6.97e-14 λ obs: 3021.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00 lwp19888.dat flux: 3.40e-14 λ obs: 3022.19 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.23
3023.15	--	--	--	lwp5842.dat flux: 4.83e-13 λ obs: 3023.15 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				lwp19888.dat flux: 4.01e-14 λ obs: 3022.97 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.19
3025.29	--	--	--				lwp14062.dat flux: 9.49e-14 λ obs: 3025.29 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
3026.06	--	--	--			lwp13904.dat flux: 1.28e-13 λ obs: 3026.06 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00		

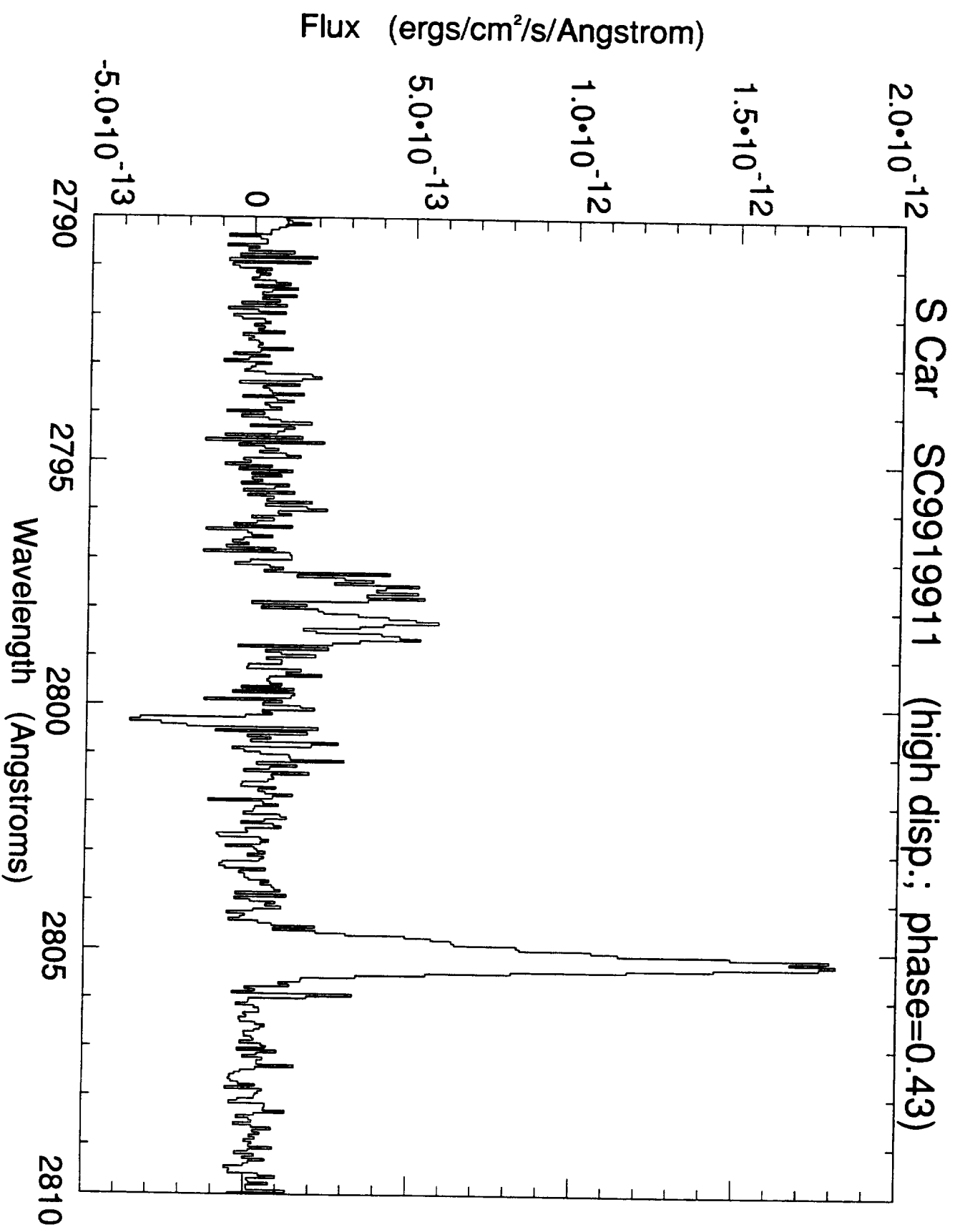
LINE	λ	RST	ID	PHASE 0.0-0.1	PHASE 0.1-0.2	PHASE 0.2-0.3	PHASE 0.3-0.4	PHASE 0.4-0.5
3027.54	--	--						lwp19902.dat flux: 1.02e-13 λ obs: 3027.54 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
3028.05	--	--				lwp6906.dat flux: 1.11e-13 λ obs: 3028.05 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwp7874.dat flux: 7.44e-14 λ obs: 3028.38 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.33	
3029.42	--	--						lwr11781.dat flux: 1.66e-13 λ obs: 3029.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00
3030.09	--	--						lwr11781.dat flux: 9.56e-14 λ obs: 3030.09 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00

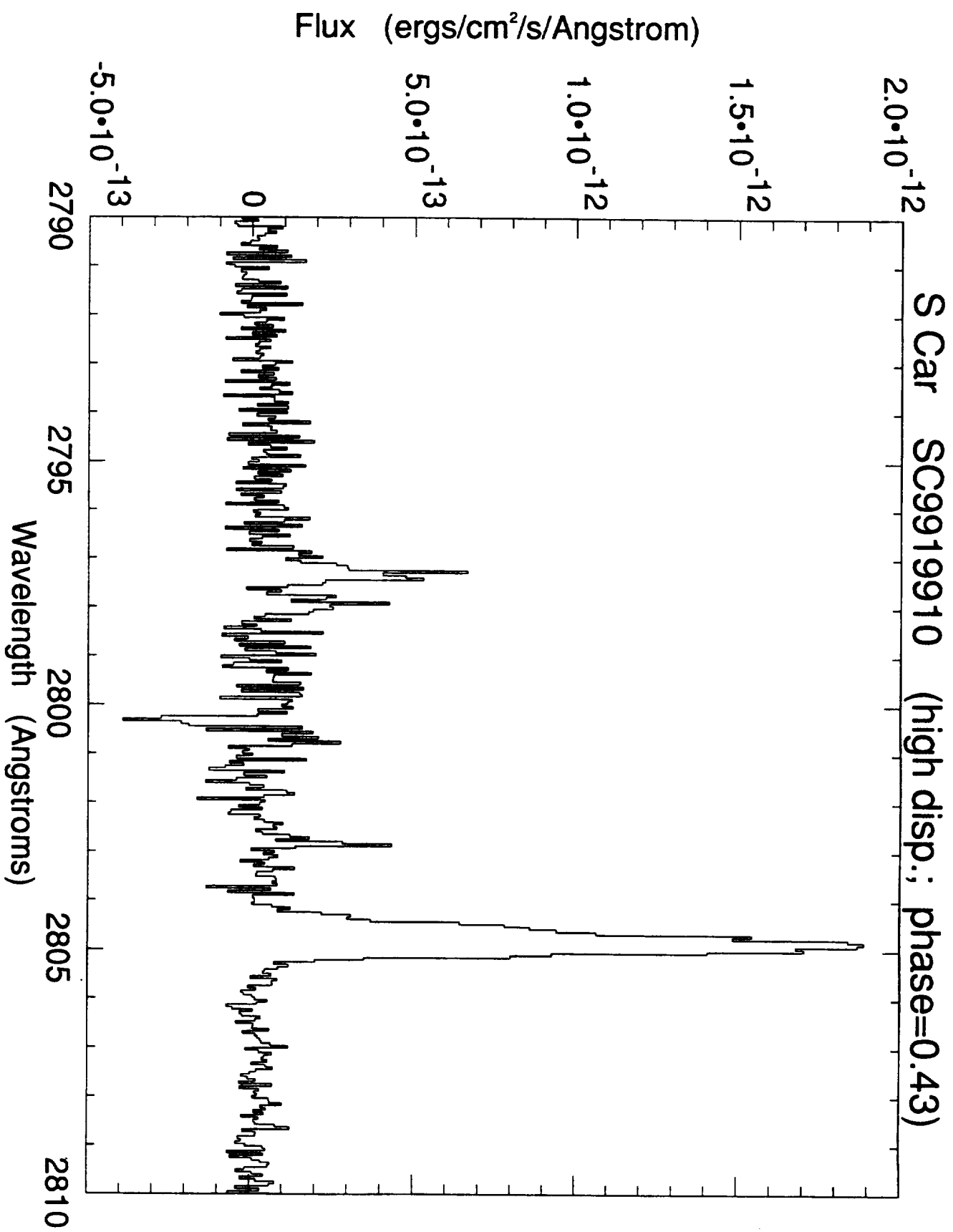


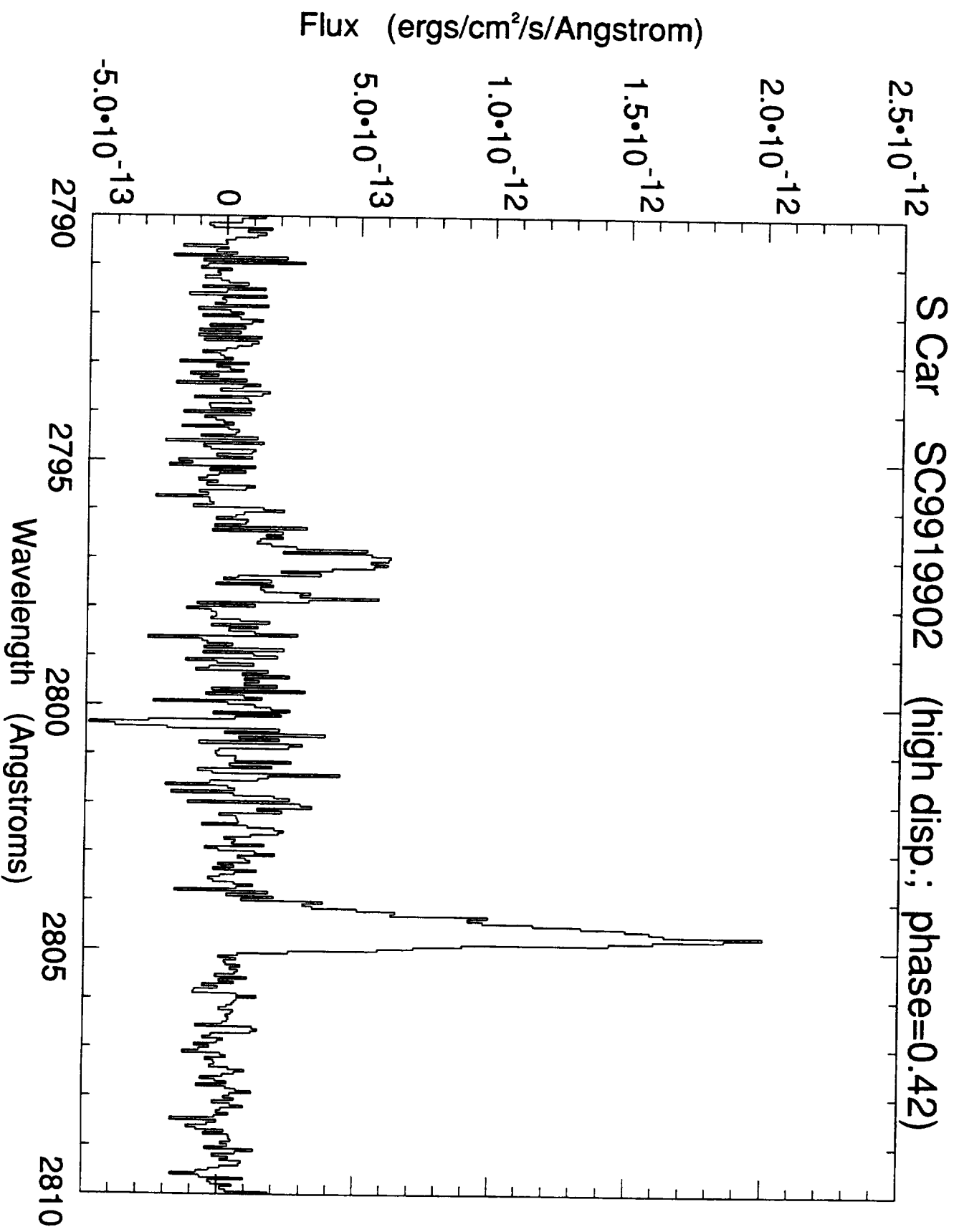


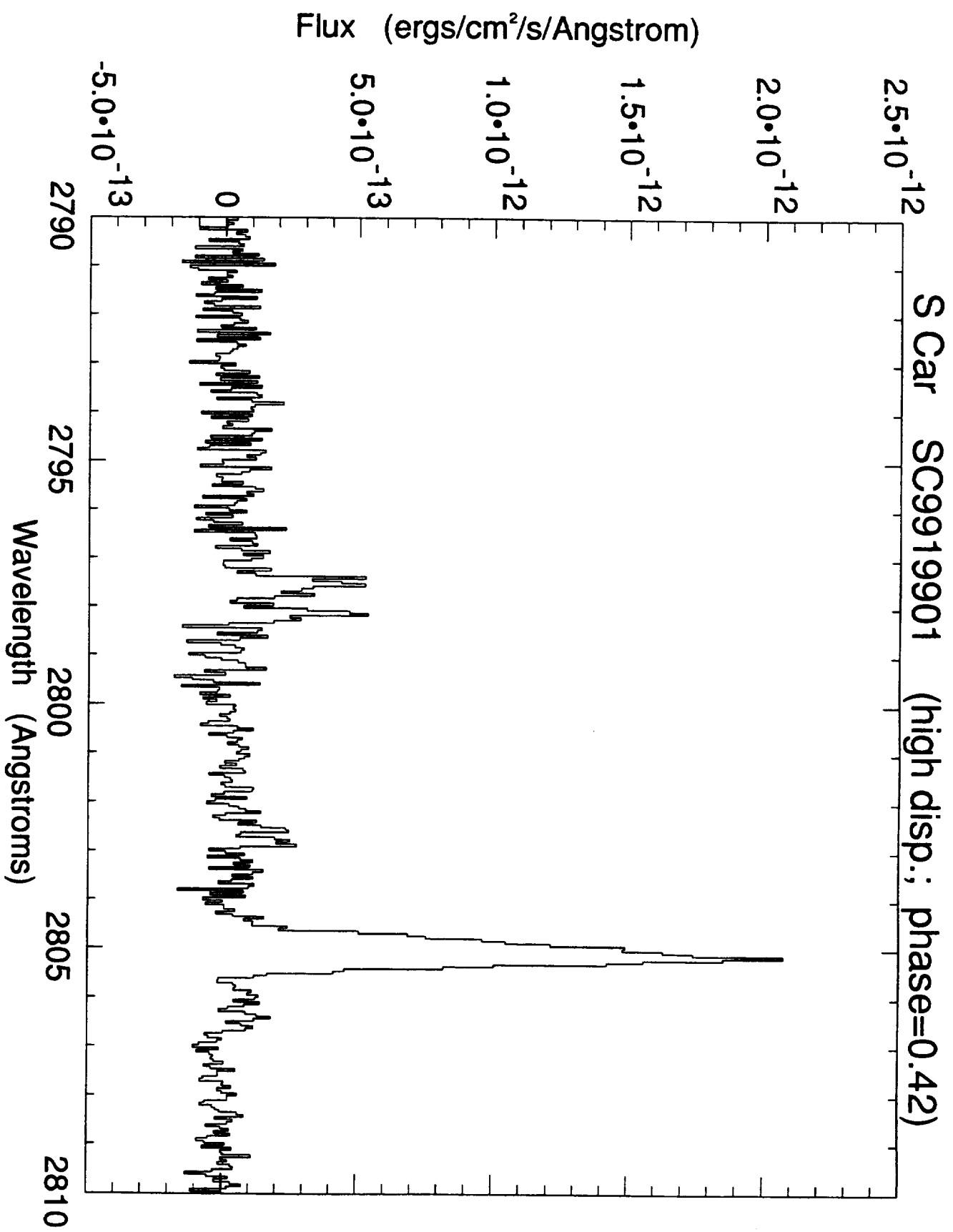


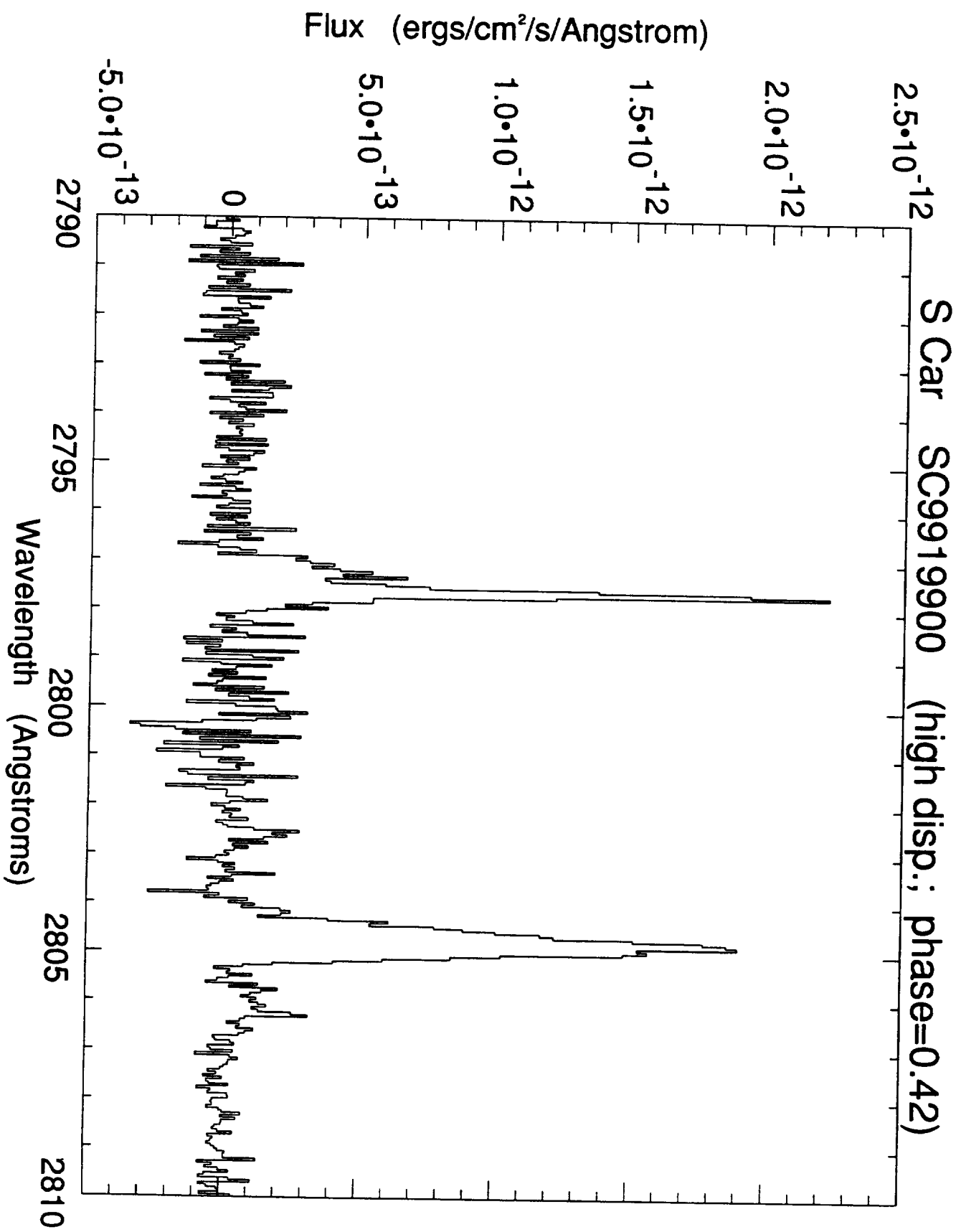


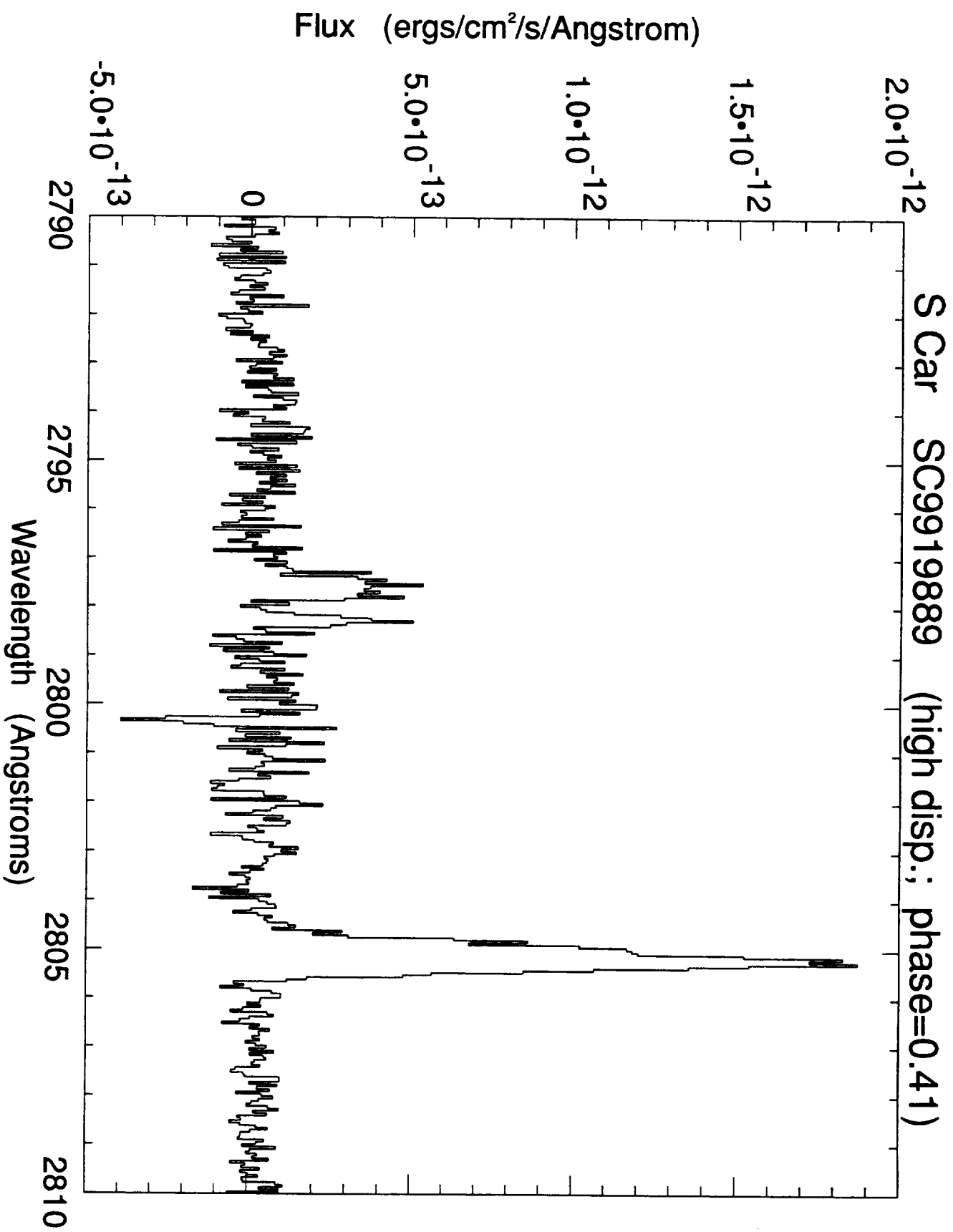


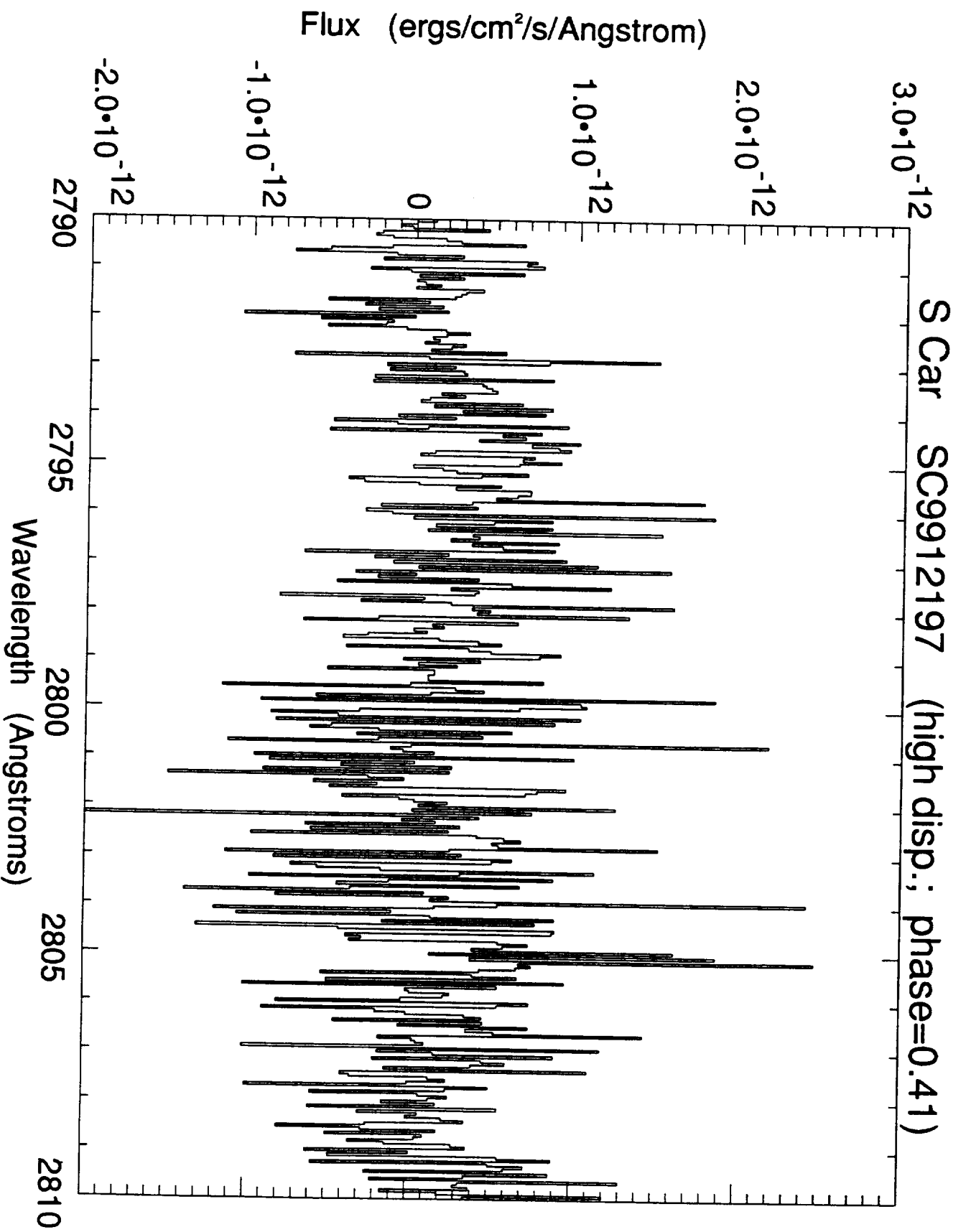


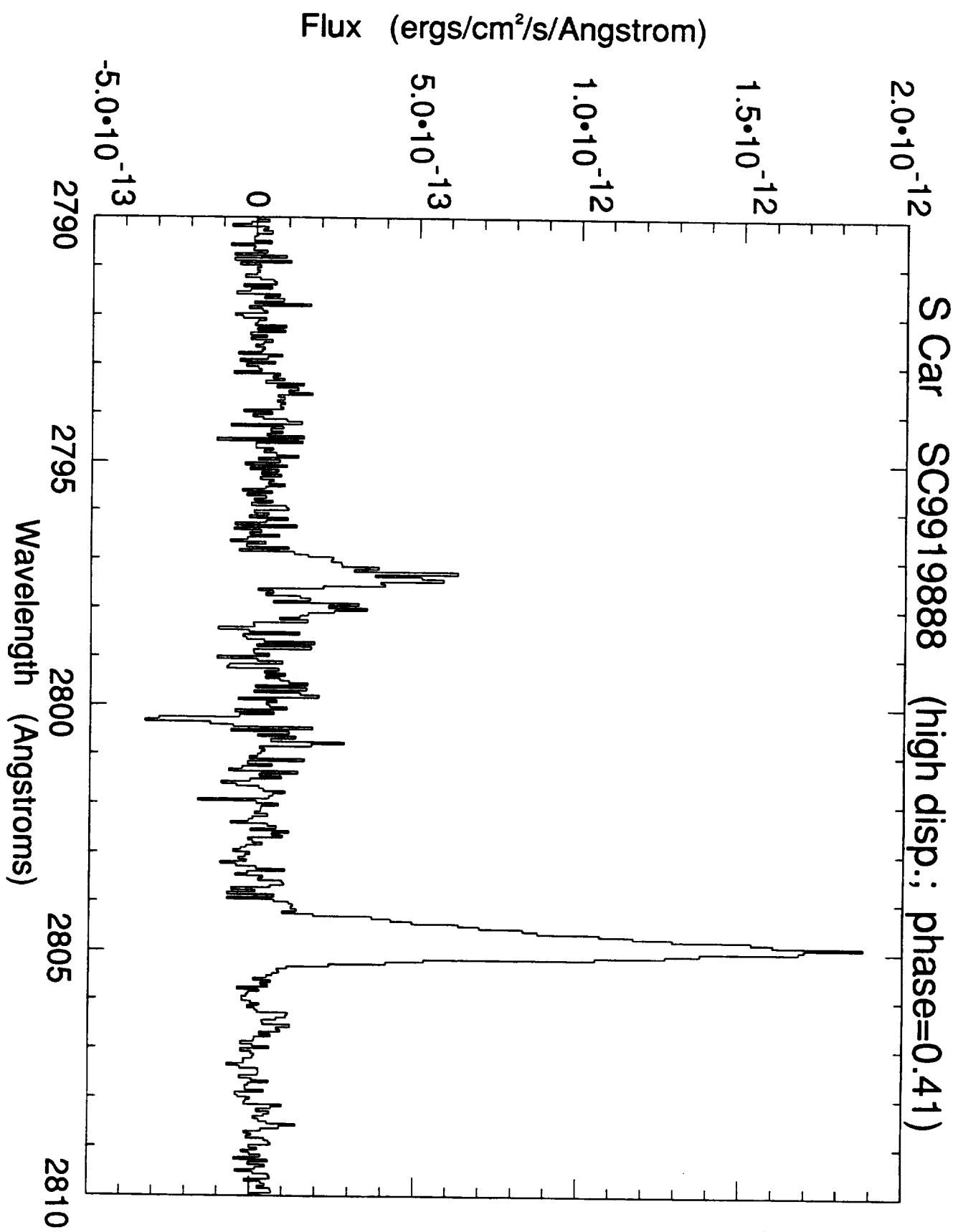


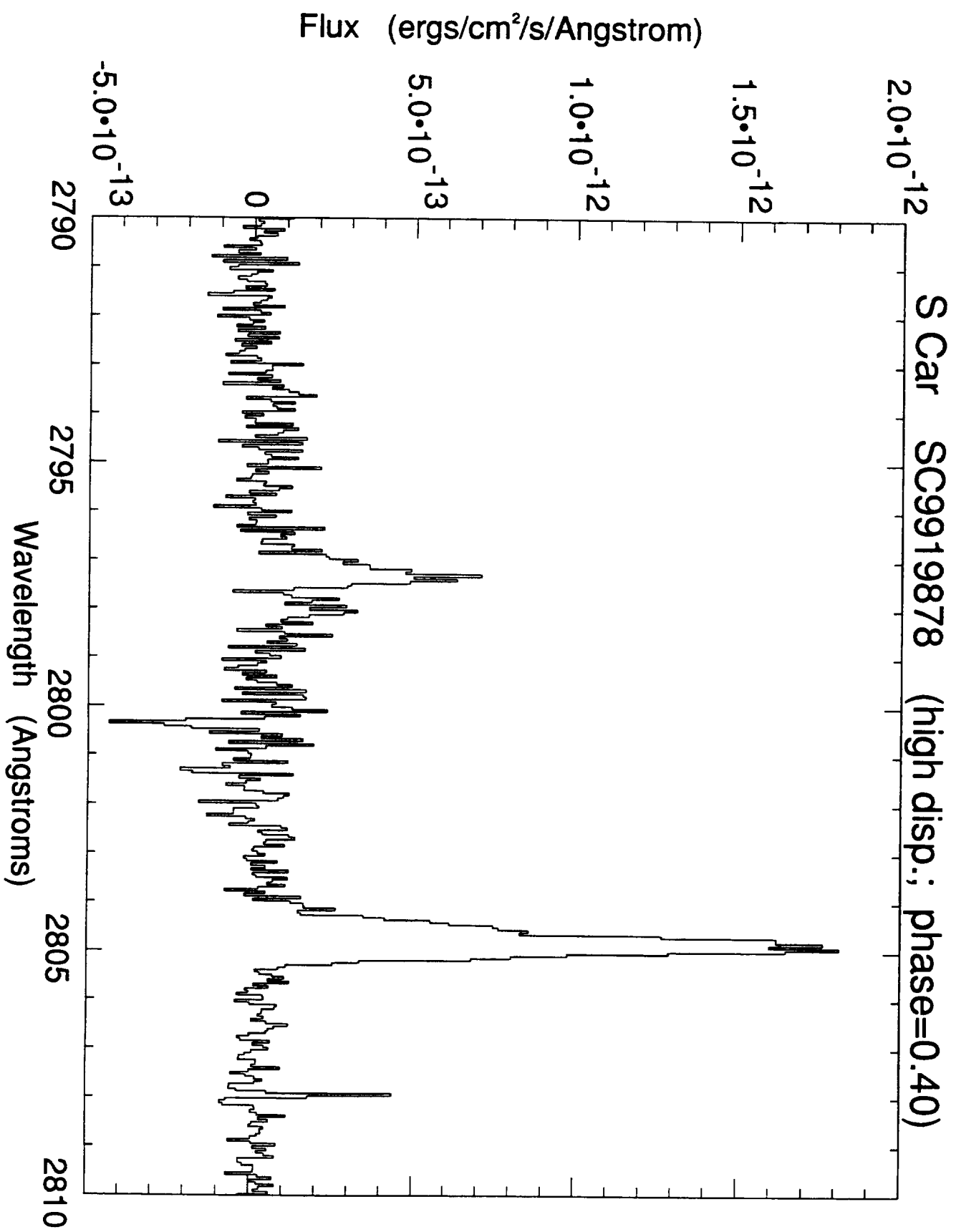


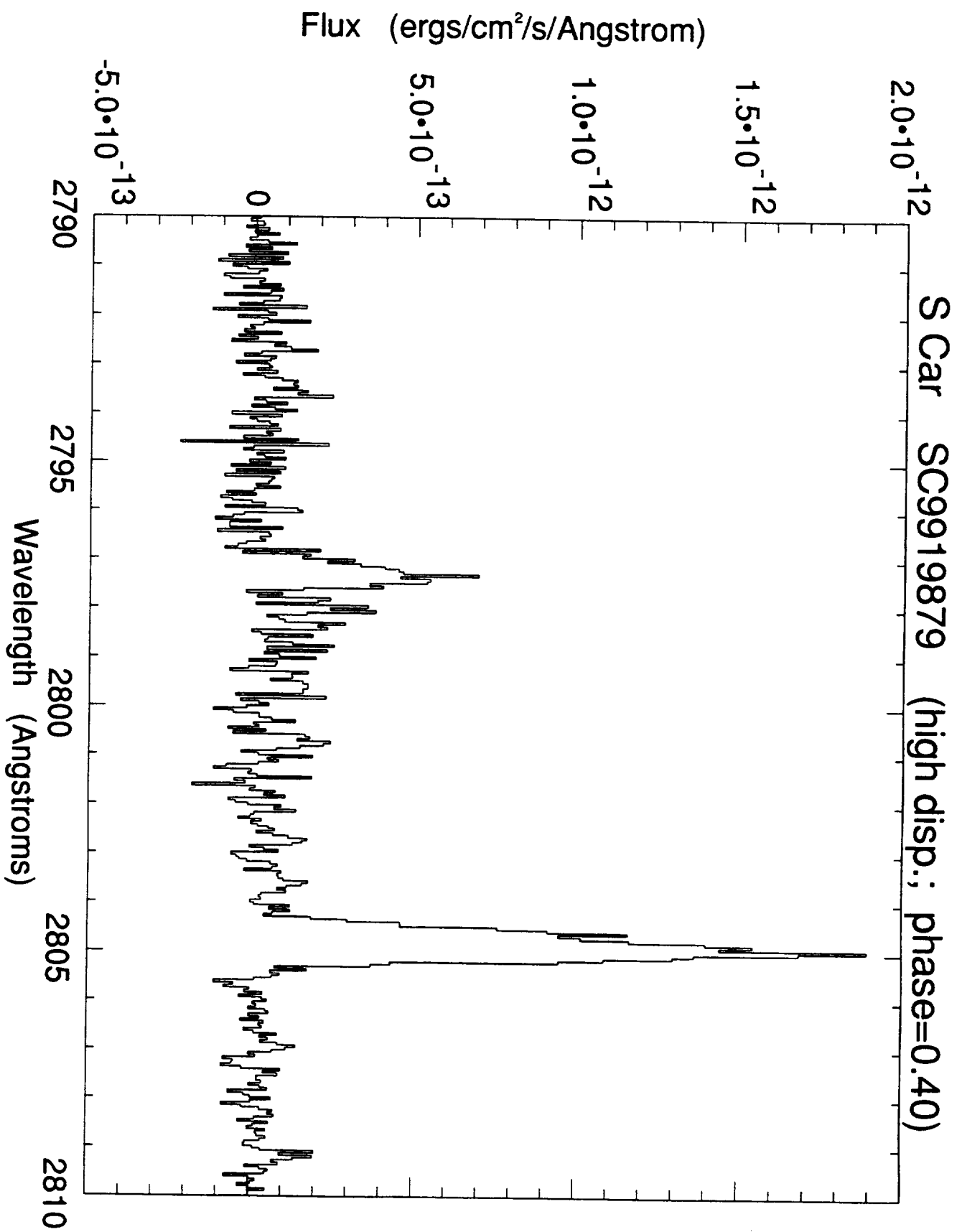


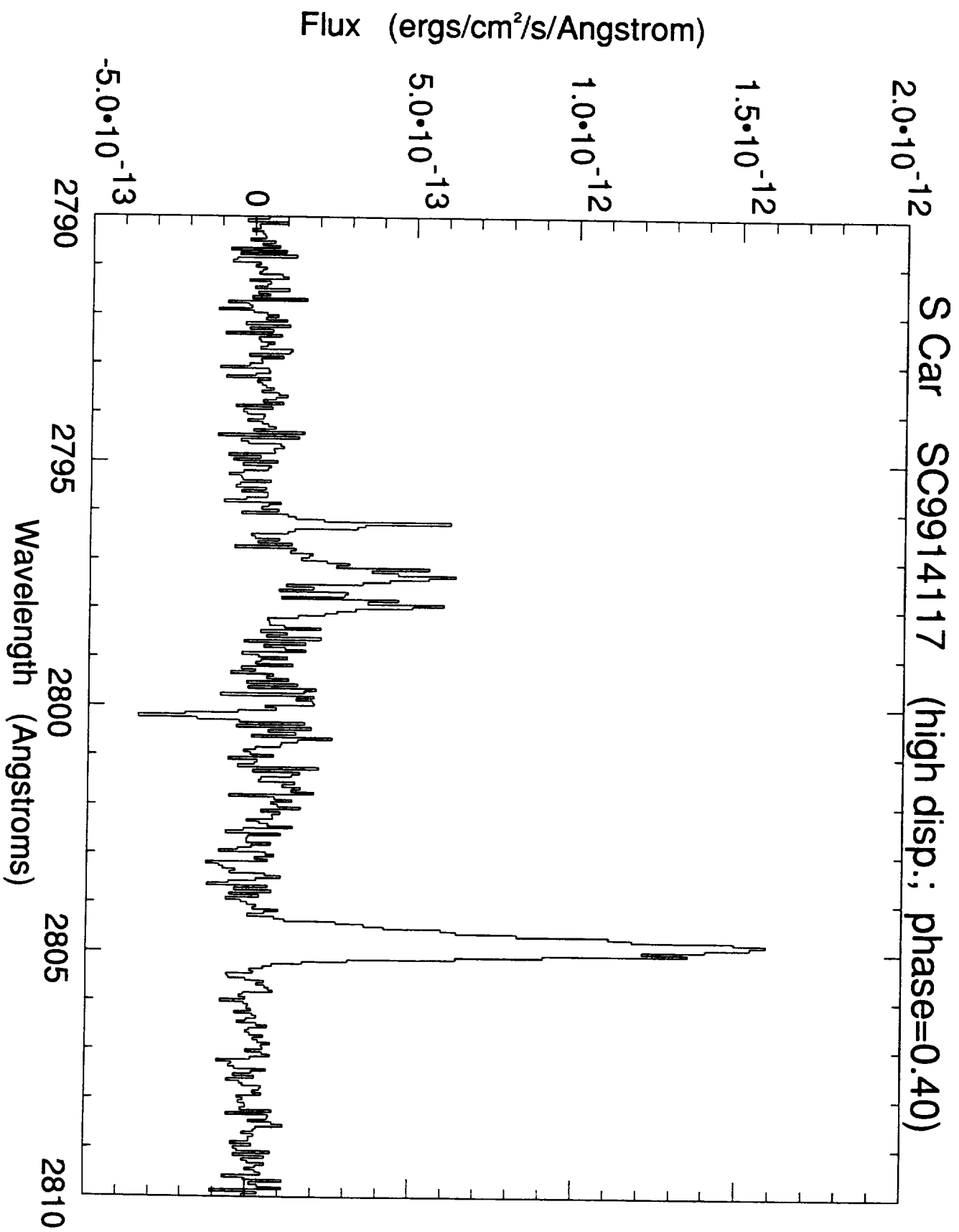


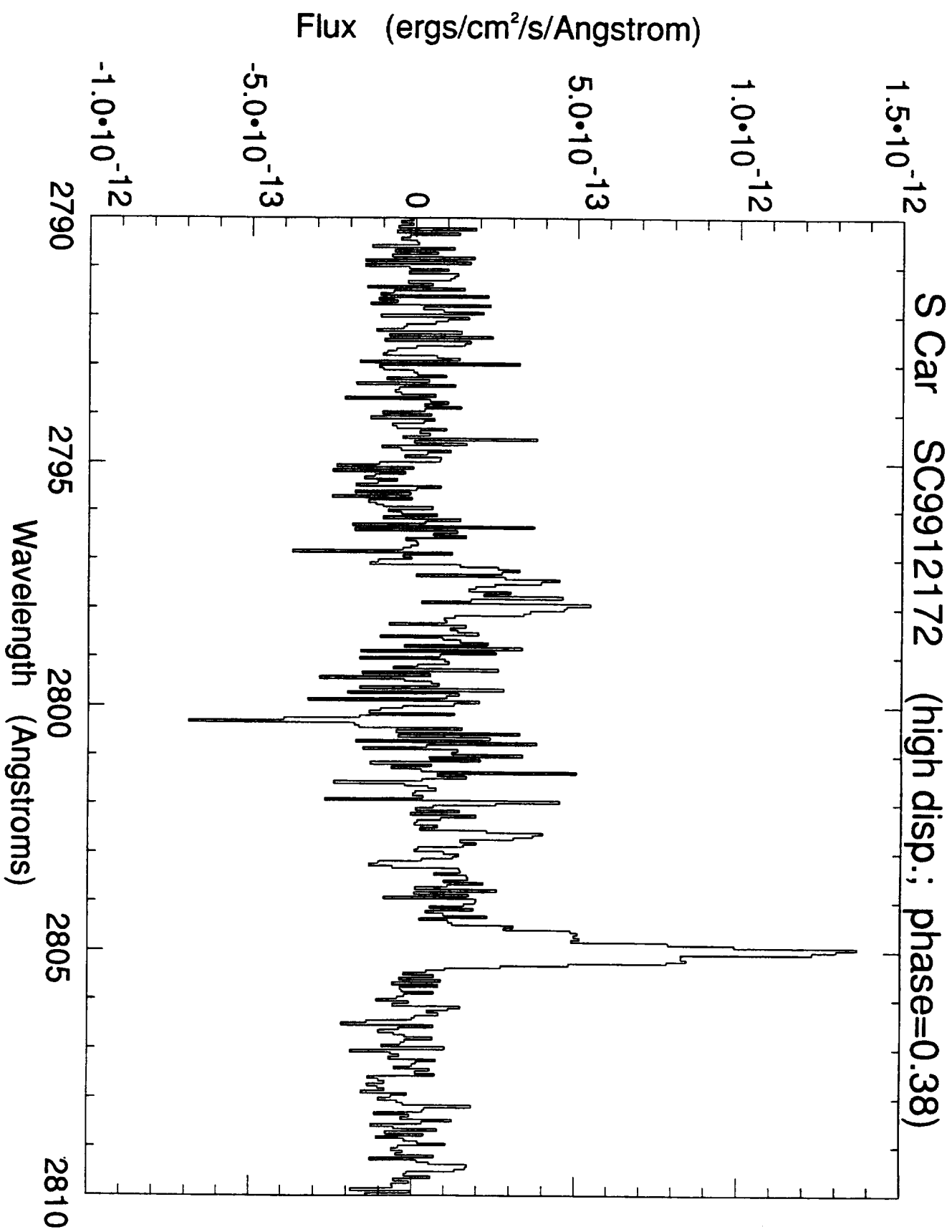


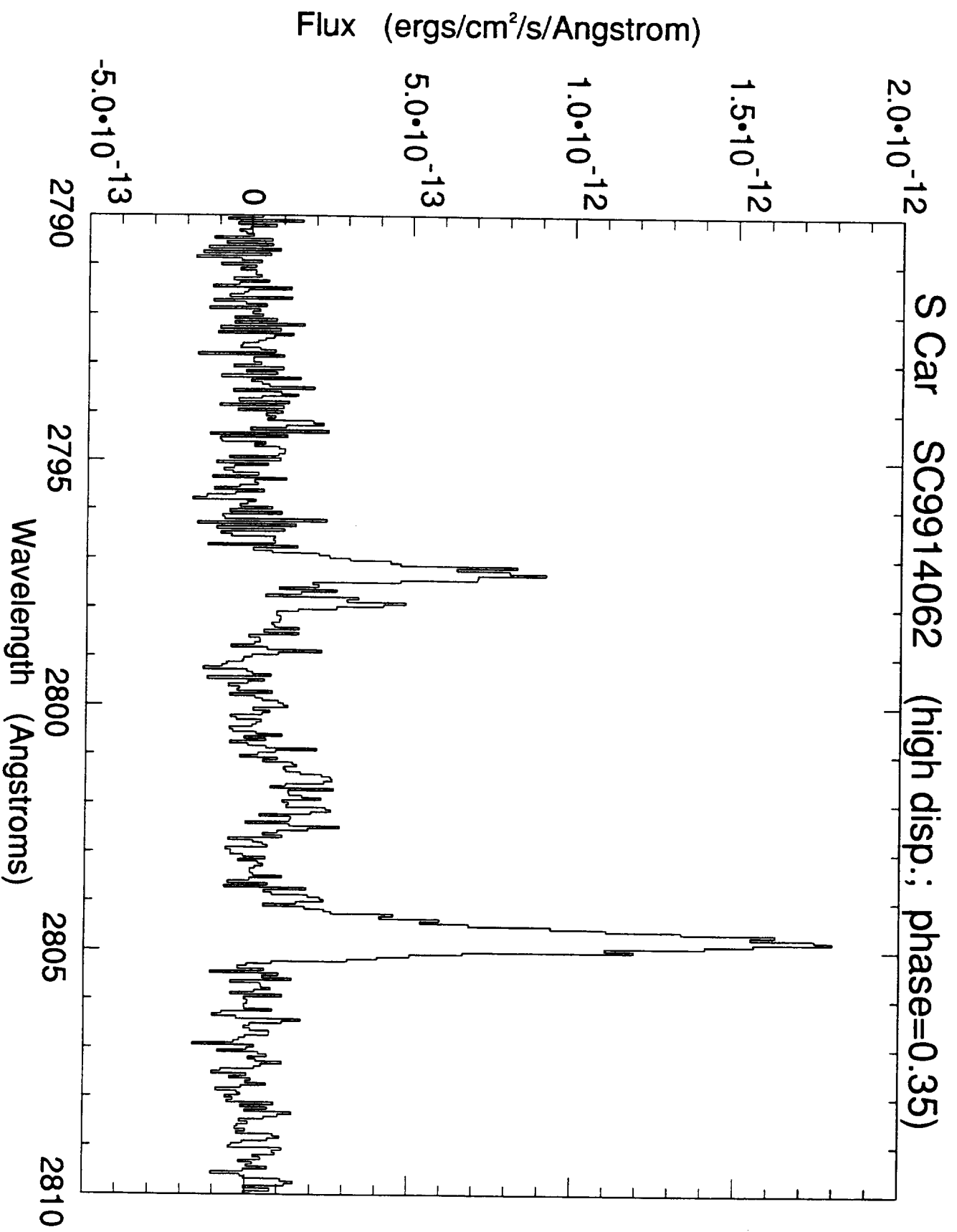


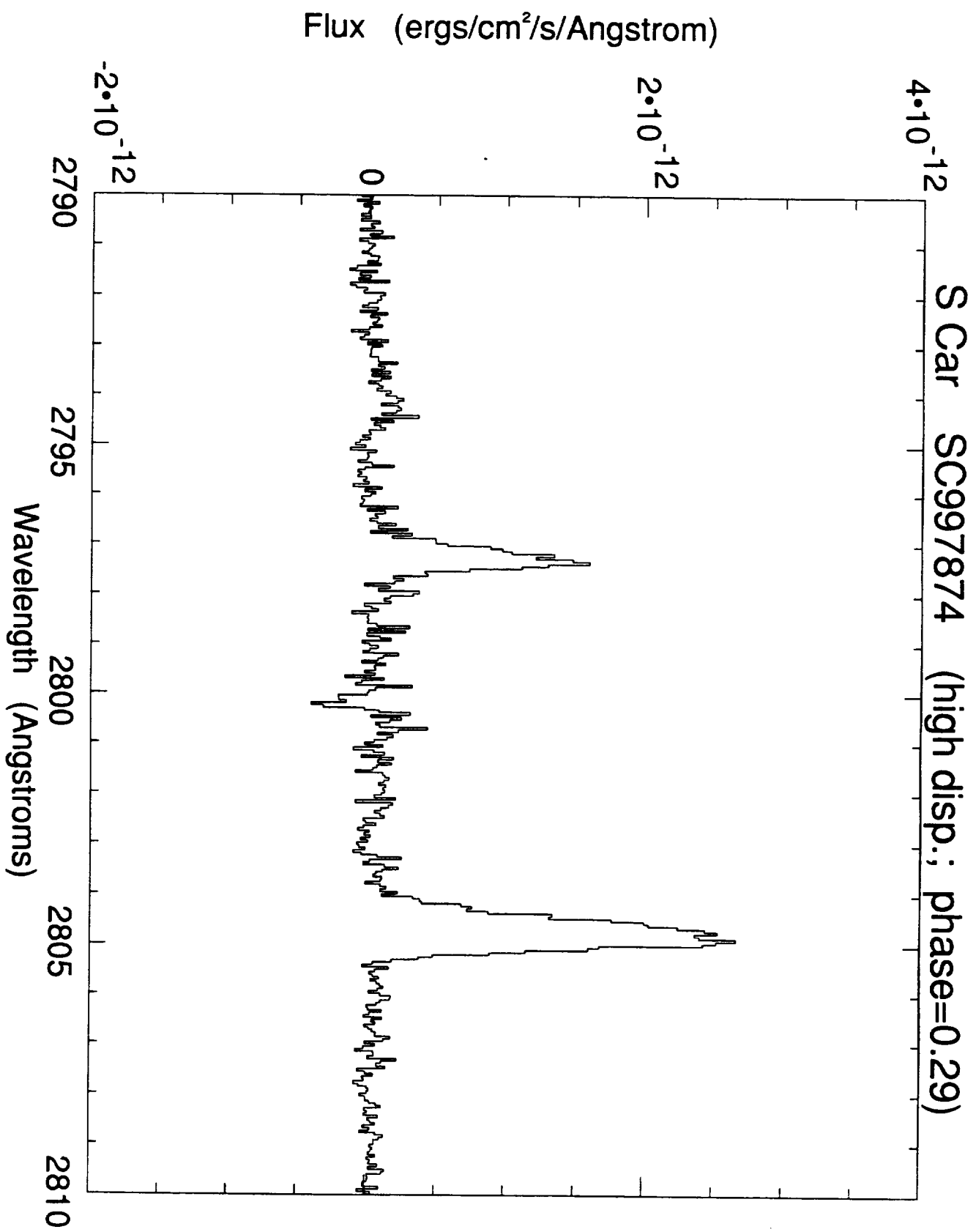


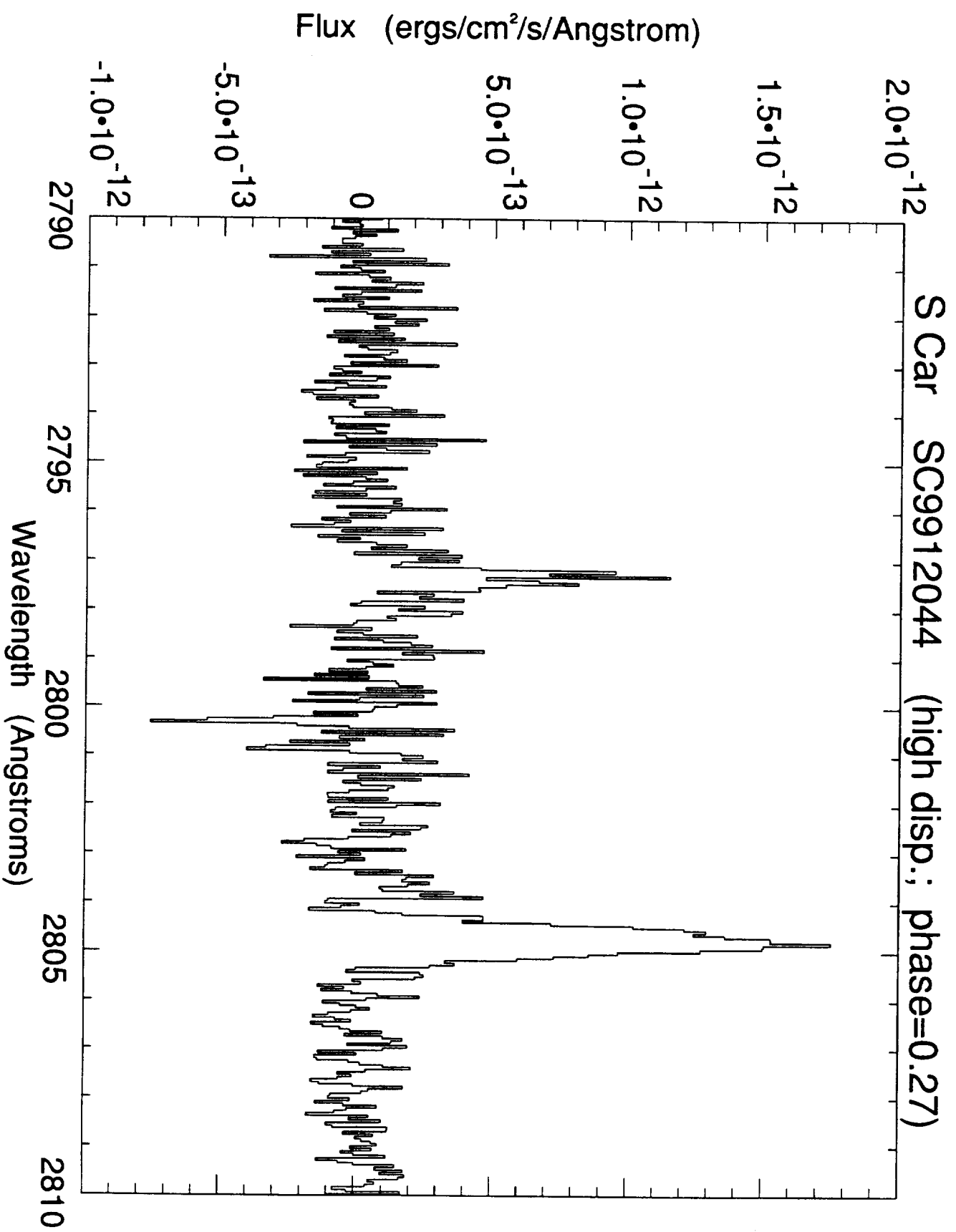


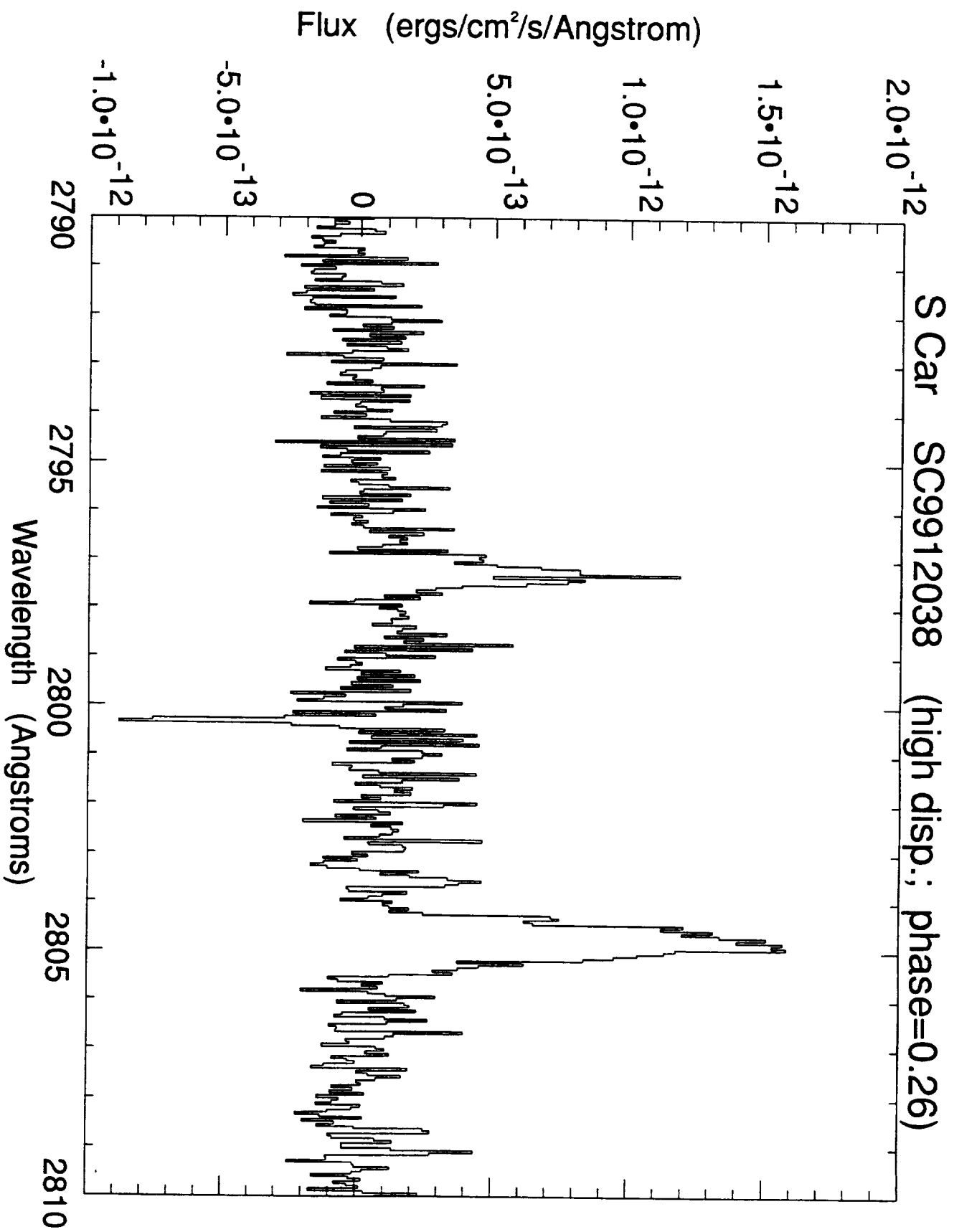


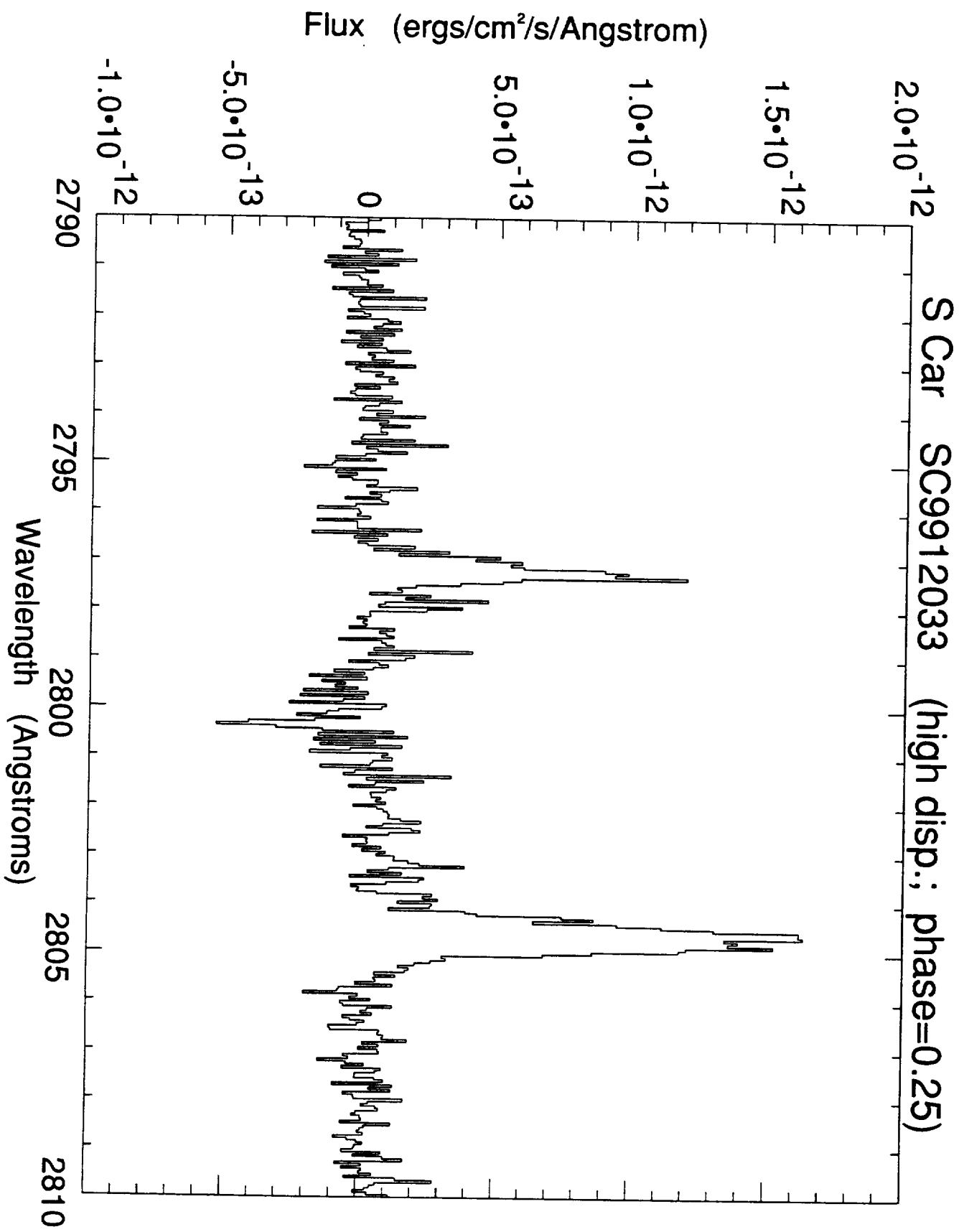


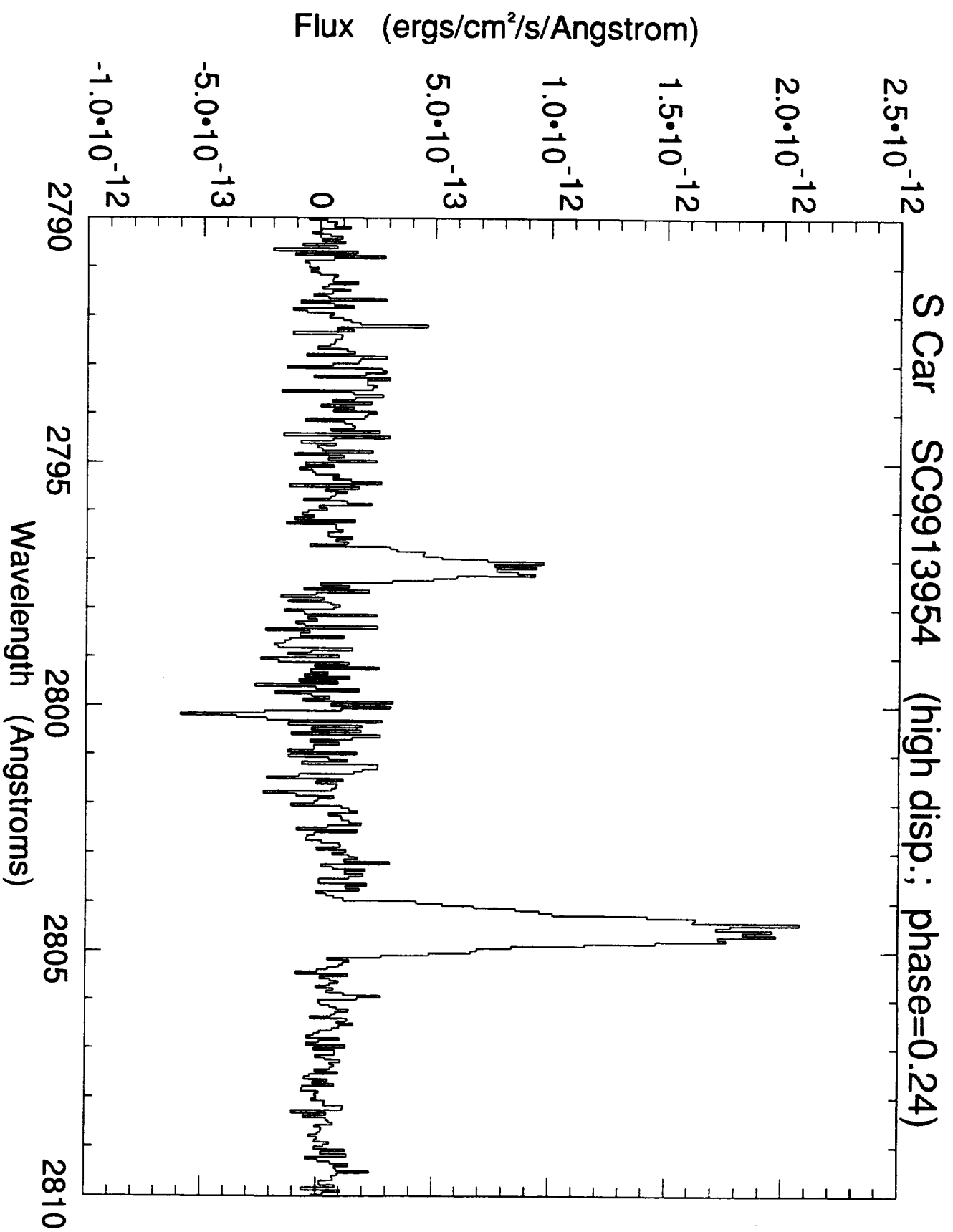


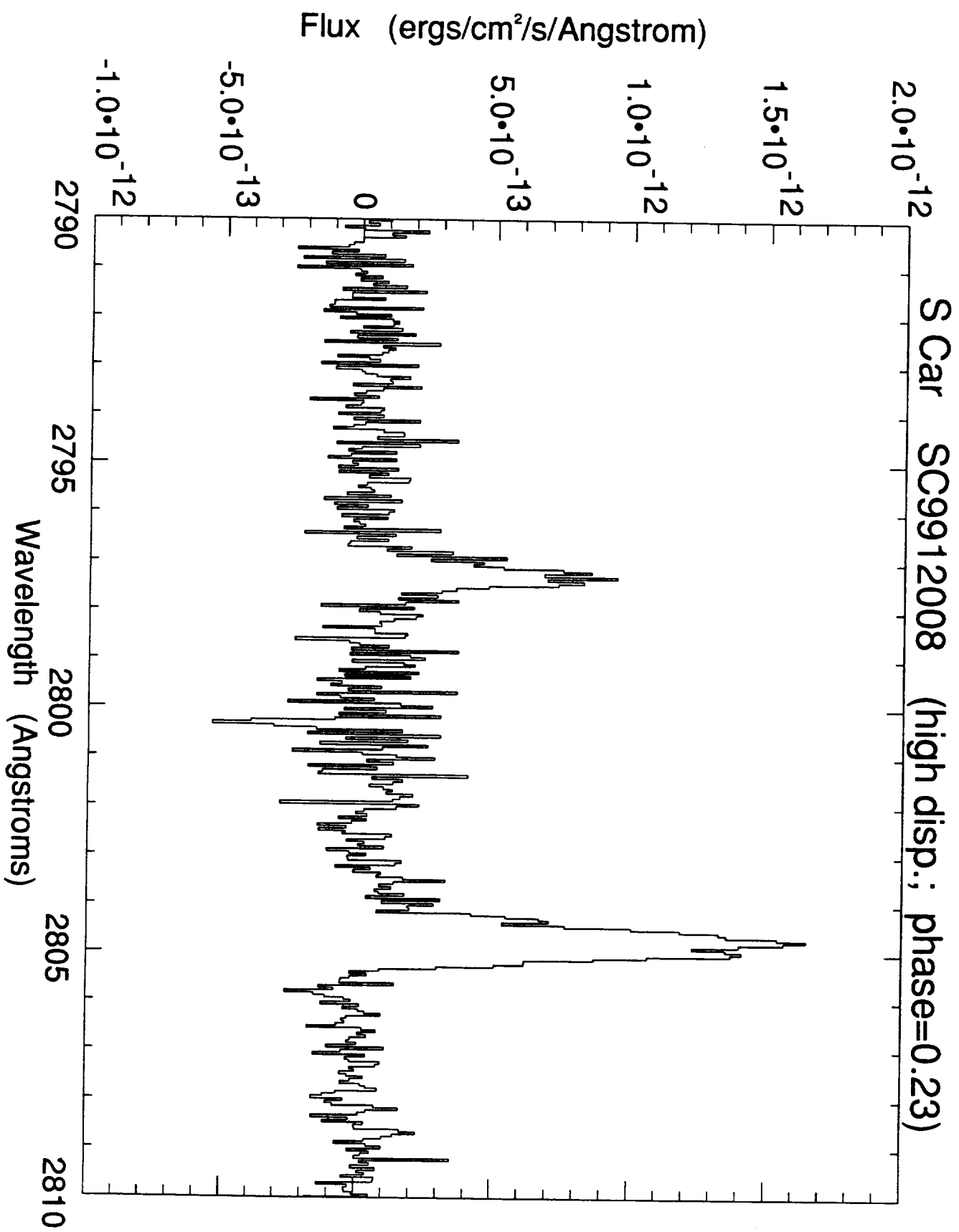






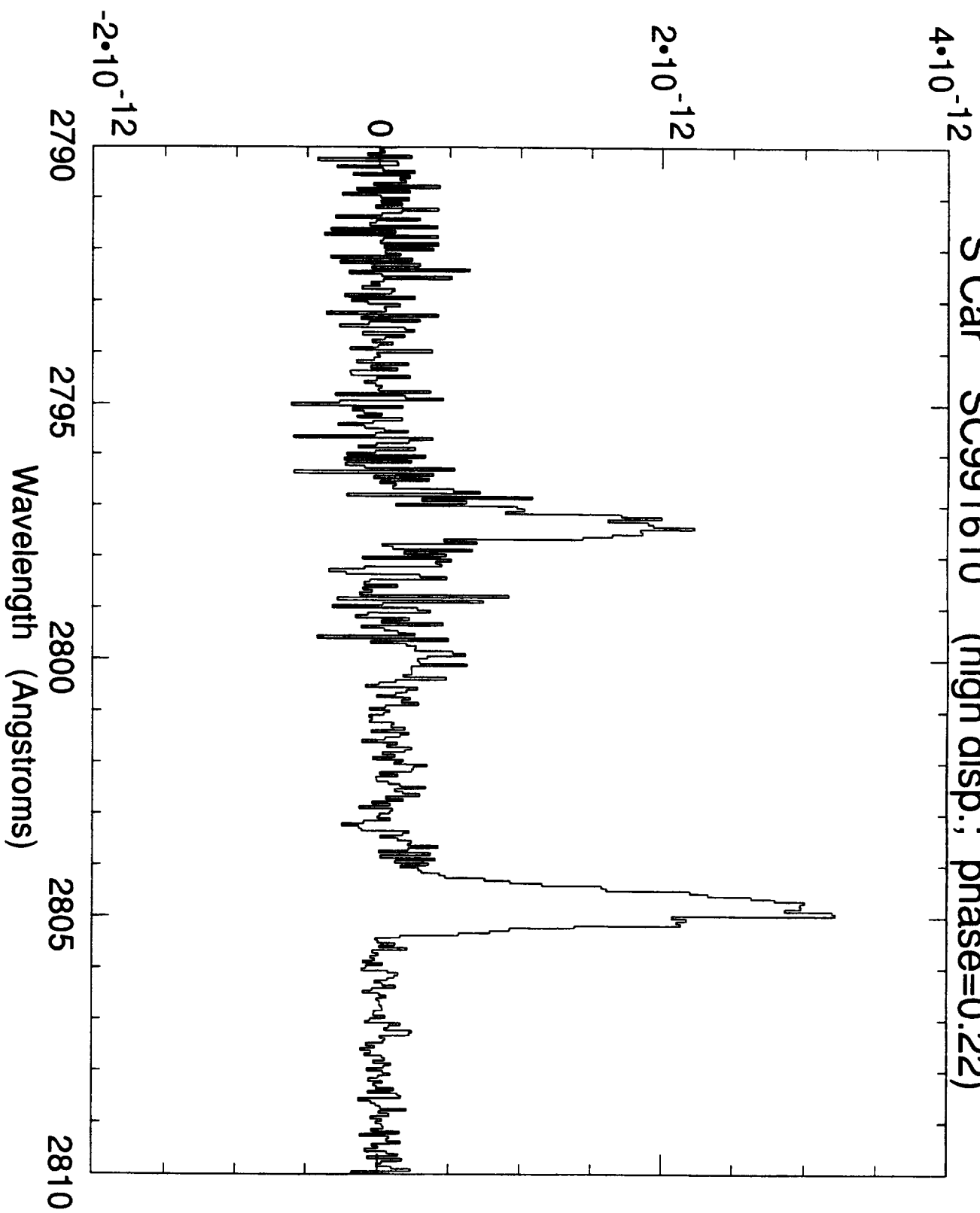


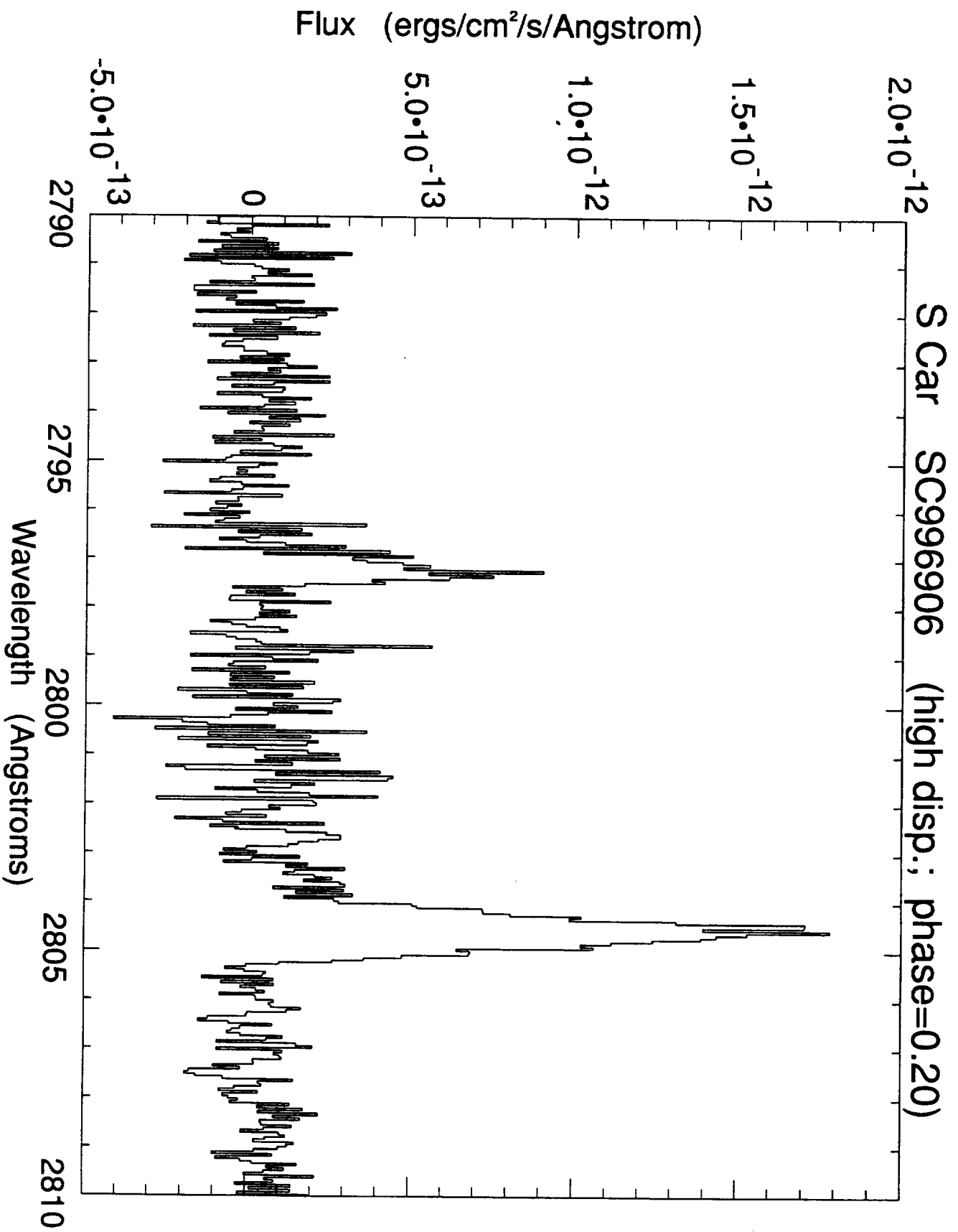


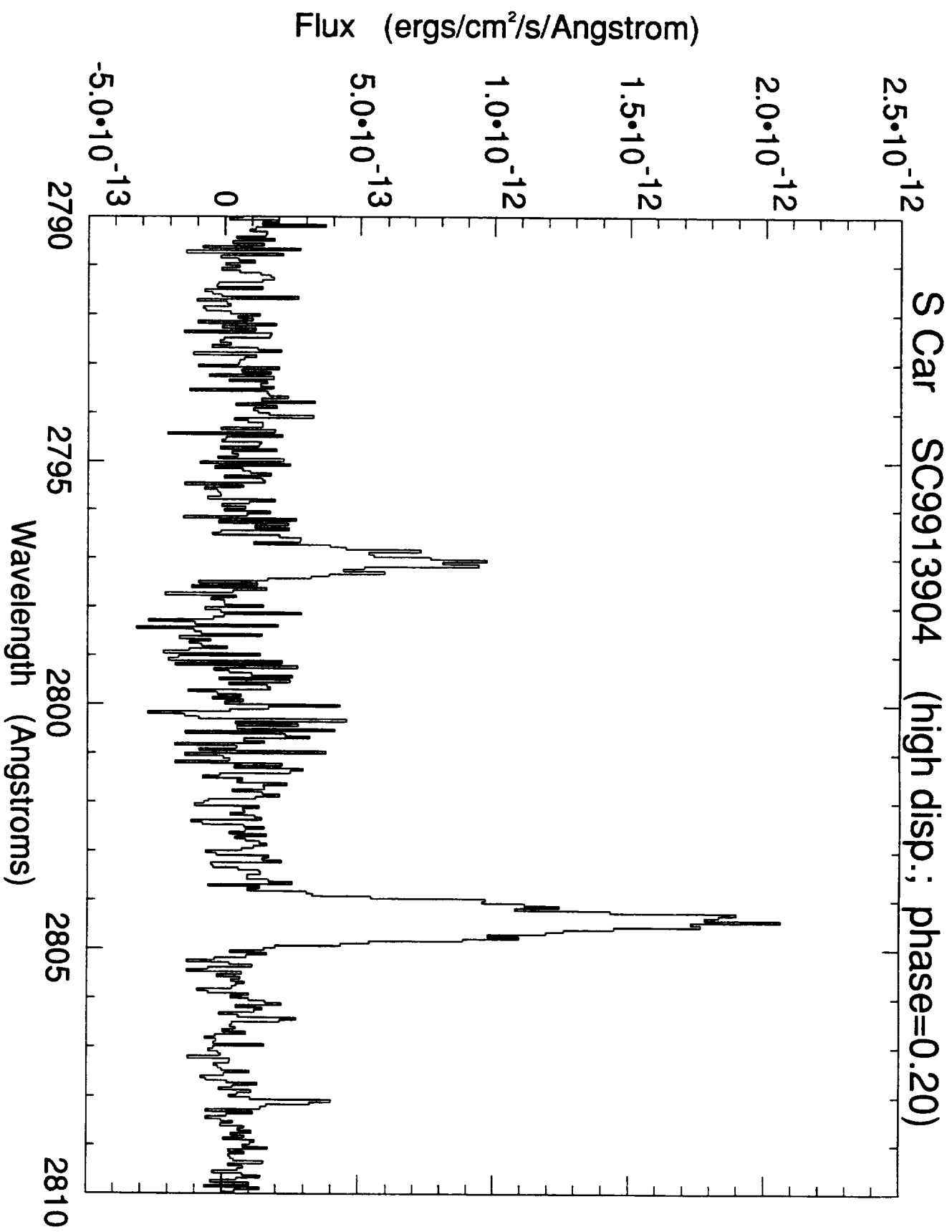


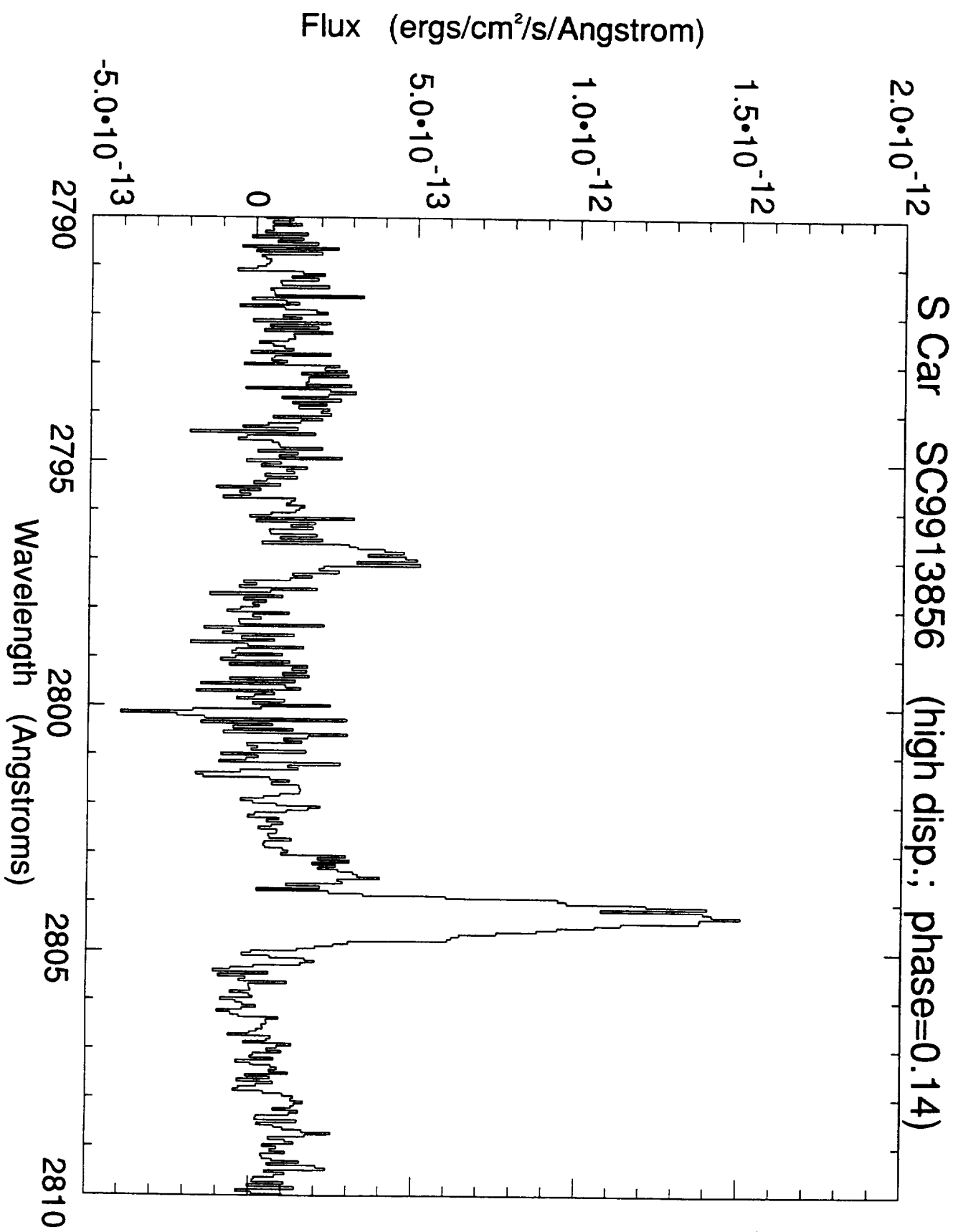
S Car SC991610 (high disp.; phase=0.22)

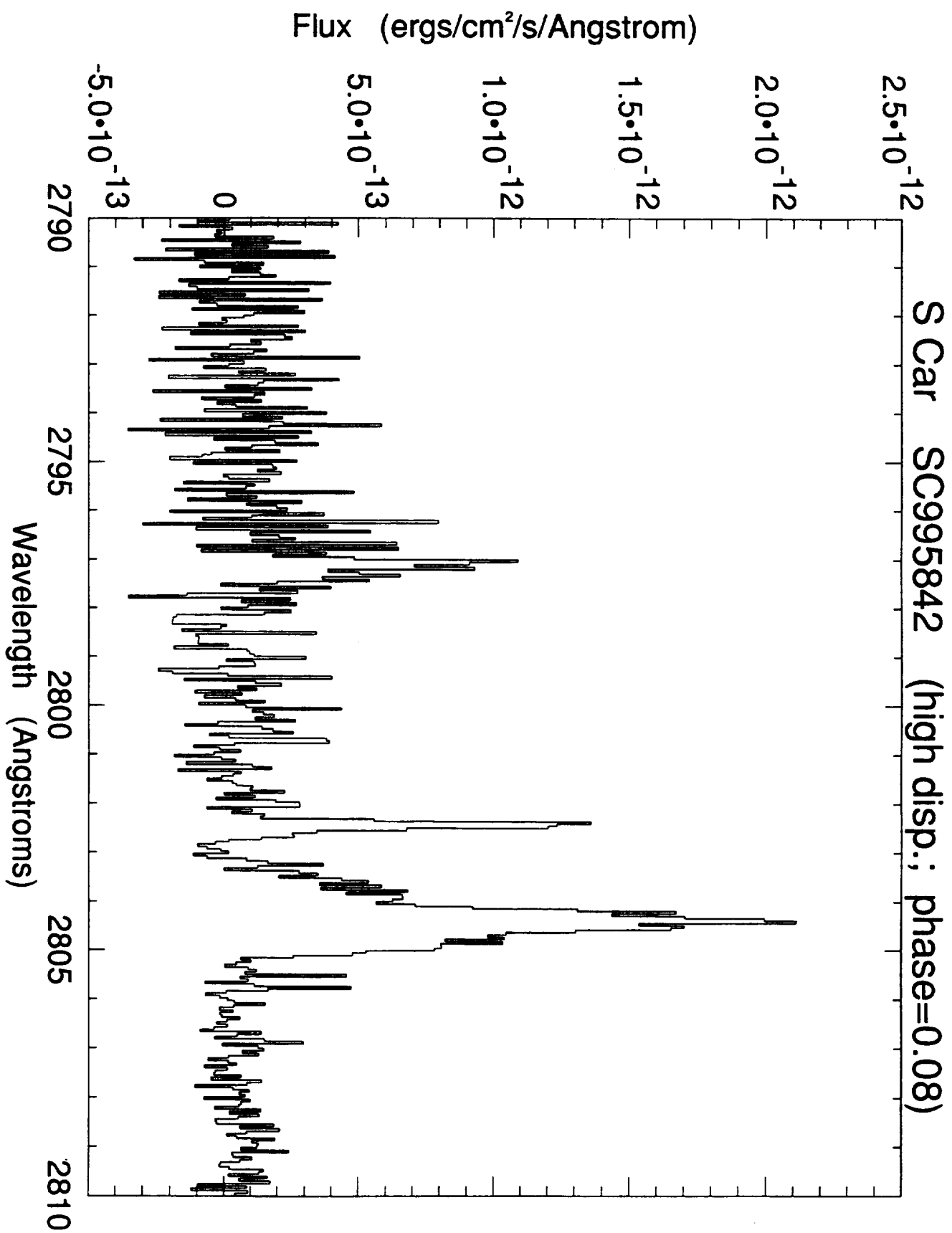
Flux (ergs/cm²/s/Angstrom)

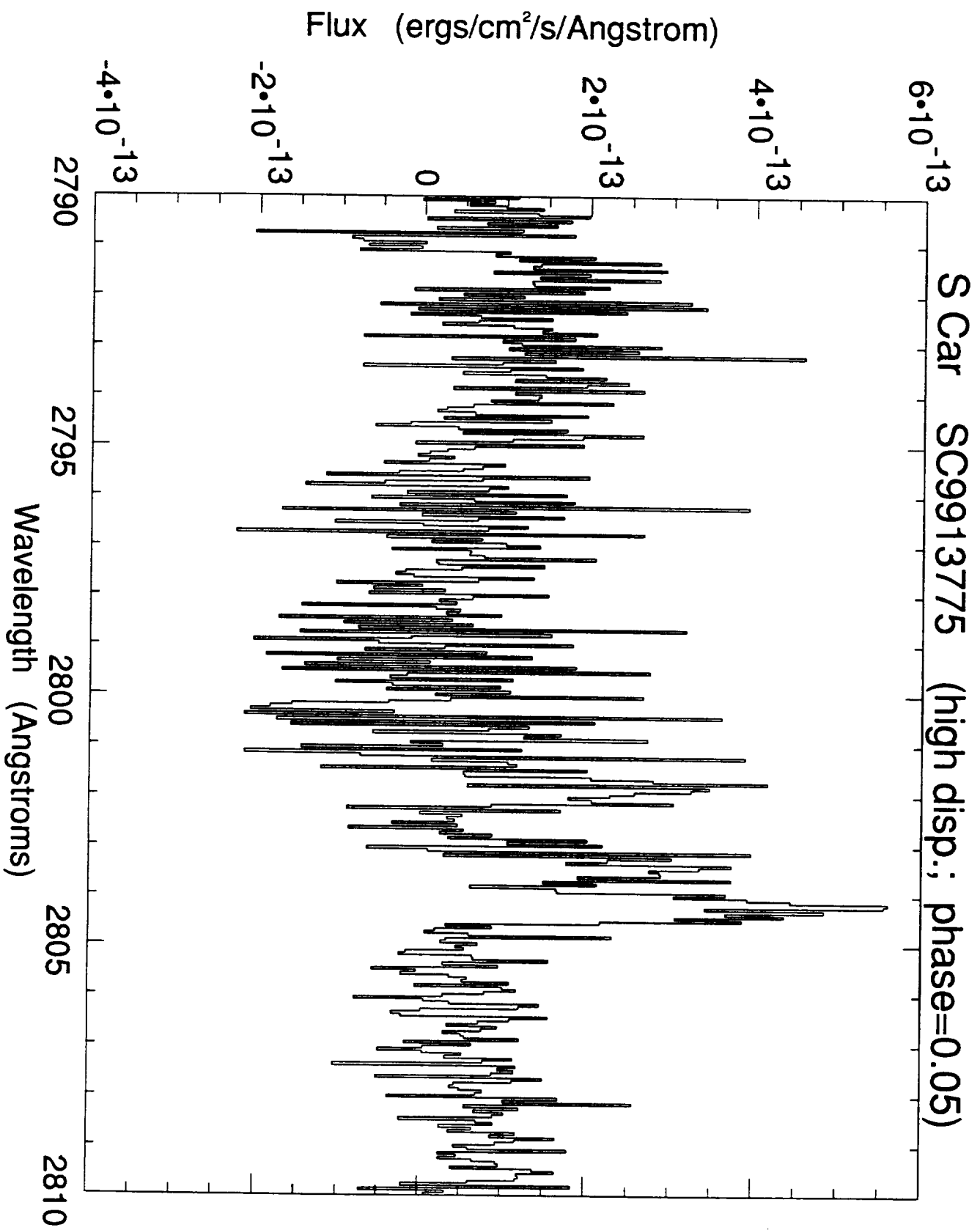












Ken,

Here is the same listing as before, but sorted by the phase of the observation. It makes me wonder whether we have made the right choices in requesting the scheduling as we did. But, since the observations are planned to begin in February, I think that we still have a couple of weeks of leeway if we want to change our minds. IN particular, it seems as though phases 0.40 - 0.42 are ***very*** well covered, even with multiple observations only a fraction of a day apart. We might well want to consider more coverage either earlier or later....

jay

PS have a pleasant (long) weekend.

0.05	lwp13775	155.00	2447375.50
0.08	lwp05842	70.00	2446183.50
0.14	lwp13856	190.00	2447389.50
0.20	lwp06906	120.00	2446351.50
0.20	lwp13904	140.00	2447397.50
0.22	lwp01610	60.00	2445157.50
0.23	lwp12008	130.00	2447103.75
0.24	lwp13954	150.00	2447403.50
0.25	lwp12033	195.00	2447106.50
0.26	lwp12038	135.00	2447107.75
0.27	lwp12044	130.00	2447108.75
0.29	lwp07874	329.00	2446514.50
0.35	lwp14062	187.00	2447420.75
0.38	lwp12172	127.00	2447125.75
0.40	lwp14117	280.00	2447427.50
0.40	lwp19878	300.00	2448325.00
0.40	lwp19879	300.00	2448325.25
0.41	lwp12197	103.00	2447129.75
0.41	lwp19888	360.00	2448326.00
0.41	lwp19889	280.00	2448326.25
0.42	lwp19900	200.00	2448328.00
0.42	lwp19901	200.00	2448328.25
0.42	lwp19902	180.00	2448328.25
0.43	lwp19910	280.00	2448329.00
0.43	lwp19911	288.00	2448329.25
0.44	lwr11781	85.00	2444891.50
0.53	lwp12304	120.00	2447147.75
0.65	lwr14135	100.00	2445221.50
0.82	lwp20353	90.00	2448387.25

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2344.59	--	--	--					
2348.66	2350.17		SiII					
2351.12	--	--	--					
2356.24	2359.11		FeII					
2357.19	2360.00		FeII					
2368.86	2370.50		FeII					
2371.27	2373.74		FeII					
2371.88	2373.74		FeII					
2374.45	--	--	--					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2379.30	2382.04	FeII		lwr14135.dat flux: 2.65e-13 λ obs: 2379.31 rv: -343.33 $\Delta \lambda$ abs: -2.73 $\Delta \lambda$ rel: 0.01			
2380.01	2382.36	FeII					
2390.91	--	--					
2392.01	2395.42	FeII					
2393.57	2395.63	FeII					
2394.94	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2395.43	--	--	--					
2396.26	2399.23		FeII					
2397.00	2399.24		FeII					
2400.97	2402.60		FeII					
2404.42	2406.66		FeII					
2405.80	2407.23		FeII					
2414.52	2416.14		NIII					
2417.41	--	--	--					
2418.12	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2419.16	--	--	--					
2419.60	--	--	--					
2423.89	--	--	--		lwr14135.dat flux: 5.20e-13 λ obs: 2423.89 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			
2426.08	--	--	--					
2437.86	2439.93		FeII					
2443.66	--	--	--					
2445.41	2448.11		FeII					
2450.27	--	--	--		lwr14135.dat flux: 4.43e-13 λ obs: 2450.01 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.38			

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2452.30	--	--	--					
2454.75	2457.10		FeII					
2457.13	--	--	--					
2463.85	--	--	--					
2464.85	2468.18		FeII		lwr14135.dat flux: 1.92e-13 λ obs: 2464.85 rv: -404.64 $\Delta \lambda$ abs: -3.33 $\Delta \lambda$ rel: 0.00			
2469.46	--	--	--					
2470.52	--	--	--					
2472.24	2474.46		FeII					
2475.75	2478.56		Cl					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
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2479.64	2482.12	FeII					
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2483.38	2485.07	FeII	lwp12304.dat flux: 7.06e-13 λ obs: 2483.46 rv: -195.08 $\Delta \lambda$ abs: -1.62 $\Delta \lambda$ rel: 0.37			lwp20353.dat flux: 1.56e-13 λ obs: 2483.32 rv: -211.73 $\Delta \lambda$ abs: -1.75 $\Delta \lambda$ rel: 0.23	
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LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2483.38	2485.07		FeII					
2484.15	--		--					
2493.96	--		--					
2495.66	2497.82		FeII					
2501.14	--		--					
2512.94	2516.11		SiII					
2525.59	--		--					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2527.87	2531.08	FeII					
2528.53	2531.08	FeII					
2538.92	2541.83	FeII					
2546.37	2549.13	FeII					
2551.19	--	--					
2554.06	2557.08	FeII		lwr14135.dat flux: 2.62e-13 λ obs: 2554.06 rv: -354.31 $\Delta \lambda$ abs: -3.02 $\Delta \lambda$ rel: 0.00			
2554.95	2557.08	FeII					
2556.71	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2557.46	2560.44		FeII					
2560.58	2563.47		FeII					
2565.29	--	--						
2567.21	--	--						
2570.97	2574.33	--						
2572.99	--	--						
2575.18	2577.92		FeII					
2575.85	2577.92		FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2575.85	2577.92	FeII					
2578.36	--	--					
2578.86	--	--		lwr14135.dat flux: 5.33e-13 λ obs: 2578.86 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			
2579.73	2582.58	FeII					
2580.91	2582.58	FeII					
2582.61	2585.88	FeII					
2585.38	--	--					
2588.63	2591.54	FeII					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2600.27	--	--	--					
2607.91	2611.07		FeII					
2613.60	--	--	--					
2614.50	2617.62		FeII					
2620.12	2621.67		FeII					
2621.17	--	--	--					
2622.49	2625.67		FeII					
2622.91	2625.67		FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2622.91	2625.67	FeII					
2624.44	--	--					
2625.22	2628.29	FeII					
2628.18	2631.05	FeII					

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LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2637.81	--	--	--					
2638.38	--	--	--					
2638.79	--	--	--					
2640.22	--	--	--					
2641.99	--	--	--					
2642.58	--	--	--					
2643.54	--	--	--					
2645.69	--	--	--					
2648.61	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2649.72	--	--	--					
2650.88	--	--	--					
2653.11	--	--	--					
2653.85	--	--	--					
2655.18	--	--	--					
2656.57	--	--	--					
2661.08	--	--	--					
2661.87	--	--	--					
2663.43	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2664.02	--	--	--					
2665.82	2669.17		AIII					
2666.27	2669.17		AIII					
2669.04	2671.80		CrII					
2671.34	--	--	--					
2672.97	--	--	--					
2677.47	--	--	--					
2678.78	--	--	--					
2679.38	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2681.42	--	--	--					
2684.08	2687.09		CrII					
2688.48	--	--	--					
2691.84	--	--	--					
2694.54	--	--	--		lwr14135.dat flux: 1.09e-13 λ obs: 2694.27 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.17			
2695.41	2698.41		CrII					
2696.31	2698.68		CrII					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2700.71	--	--						
2701.69	--	--						
2702.39	--	--						
2703.81	--	--						
2704.35	--	--						
2705.30	2708.40		MnII					
2706.38	2709.38		FeII	lwp12304.dat flux: 8.95e-14 λ obs: 2706.51 rv: -318.34 $\Delta \lambda$ abs: -2.88 $\Delta \lambda$ rel: 0.12				
2708.09	--	--		lwp12304.dat flux: 7.64e-14 λ obs: 2708.09 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2710.69	2712.30		CrII					
2711.97	2714.41		FeII					
2713.16	2716.70		FeII					
2714.88	2717.51		FeII					
2716.65	2718.62		FeII	lwp12304.dat flux: 1.01e-13 λ obs: 2716.65 rv: -216.82 $\Delta \lambda$ abs: -1.96 $\Delta \lambda$ rel: 0.00				
2717.28	--	--	--	lwp12304.dat flux: 3.83e-14 λ obs: 2717.28 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.38				
2717.81	--	--	--					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2719.08	2722.74	CrII		lwr14135.dat flux: 7.05e-14 λ obs: 2719.21 rv: -388.92 $\Delta \lambda$ abs: -3.53 $\Delta \lambda$ rel: 0.13			
2719.72	2722.74	CrII					
2720.97	2722.74	CrII					
2722.42	2724.88	FeII					
2724.67	2727.54	FeII					
2726.02	--	--					
2727.25	2730.73	FeII					
2729.73	2732.45	FeII					
2733.79	2736.96	FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2735.22	2736.96	FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2735.22	2736.96	FeII					
2739.17	2741.40	FeII					
2740.96	2743.20	FeII					
2741.37	2744.26	FeII					
2741.92	2744.26	FeII					
2742.73	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2742.73	--	--	--					
2743.99	2746.98		FeII	lwp12304.dat flux: 4.87e-14 λ obs: 2743.99 rv: -326.54 $\Delta \lambda$ abs: -2.99 $\Delta \lambda$ rel: 0.00				
2744.97	2746.98		FeII					
2745.70	2749.18		FeII					
2747.70	2749.49		FeII					
2748.42	--	--	--				lwp20353.dat flux: 5.99e-14 λ obs: 2748.42 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2749.01	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2749.01	--	--	--					
2749.45	--	--	--					
2749.95	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2749.95	--	--	--					
2750.92	--	--	--	lwp12304.dat flux: 6.08e-14 λ obs: 2750.92 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	lwr14135.dat flux: 6.64e-14 λ obs: 2750.96 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.04			
2752.64	2755.74	FeII		lwp12304.dat flux: 4.26e-14 λ obs: 2752.64 rv: -337.38 $\Delta \lambda$ abs: -3.10 $\Delta \lambda$ rel: 0.31				
2753.57	2755.74	FeII						
2754.31	2757.72	CrII						
2755.50	2757.72	CrII						
2758.32	2761.81	FeII						

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2759.42	2761.81	FeII					
2760.11	2763.50	FeII					
2761.89	2763.50	FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2761.89	2763.50	FeII					

2762.42 -- --

2763.99 -- --

lwp20353.dat
flux: 2.03e-13
 λ obs: 2763.99
rv: 0.00
 $\Delta \lambda$ abs: 0.00
 $\Delta \lambda$ rel: 0.00

2766.07 2768.94 FeII

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2768.30	--	--					
2769.58	2772.73	FeII					
2772.01	2774.73	FeII					
2775.91	2777.59	FeII					
2776.86	--	--					
2777.53	--	--					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2777.53	--	--					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2778.19	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2778.19	--	--	--					
2778.62	--	--	--	lwp12304.dat flux: 4.63e-14 λ obs: 2778.62 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.27				
2780.07	--	--	--	lwp12304.dat flux: 4.08e-14 λ obs: 2780.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.14				
2781.10	--	--	--	lwp12304.dat flux: 4.89e-14 λ obs: 2781.10 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00				
2782.05	2785.02		FeII					
2782.96	2785.02		FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2783.42	2785.02	FeII					
2785.07	2787.24	FeII					
2785.91	--	--		lwr14135.dat flux: 7.15e-14 λ obs: 2785.91 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			
2787.71	2790.75	FeII					
2788.75	2790.75	FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2790.01	--	--					

2796.27	2795.52	MgII					
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2797.37	2795.52	MgII					
				lwr14135.dat			
				flux: 1.70e-13			
				λ obs: 2797.69			
				rv: 232.24			
				$\Delta \lambda$ abs: 2.16			
				$\Delta \lambda$ rel: 0.52			

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
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2797.37	2795.52	MgII					
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2798.13	2795.52	MgII	lwp12304.dat				
			flux: 2.10e-13				
			λ obs: 2798.13				
			rv: 280.21				
			$\Delta \lambda$ abs: 2.61				
			$\Delta \lambda$ rel: 0.27				

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2798.13	2795.52	MgII					
2800.64	2802.70	MgII		lwr14135.dat flux: 2.51e-13 λ obs: 2800.64 rv: -219.96 $\Delta \lambda$ abs: -2.05 $\Delta \lambda$ rel: 0.00			
2802.45	2802.70	MgII					
2803.49	2802.70	MgII					
2804.37	2802.70	MgII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2804.37	2802.70	MgII					
2804.78	2802.70	MgII	lwp12304.dat				
			flux: 1.19e-13				
			λ obs: 2804.96				
			rv: 242.22				
			$\Delta \lambda$ abs: 2.26				
			$\Delta \lambda$ rel: 0.18				

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2804.78	2802.70	MgII					
2806.22	2809.78	FeII					
2806.94	2809.78	FeII					
2808.12	2809.78	FeII					
2809.19	--	--					
2810.40	--	--					
							lwp20353.dat
							flux: 5.49e-13
							λ obs: 2810.35
							rv: 0.00
							$\Delta \lambda$ abs: 0.00
							$\Delta \lambda$ rel: -0.05

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2810.40	--	--					
2810.95	--	--					
2811.54	--	--					
2813.23	--	--					
2813.82	2817.09	FeII					
2815.00	2817.09	FeII					
2817.56	2820.95	FeII					
2821.58	2824.57	FeII					
2823.33	--	--					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2825.97	--	--					
2829.21	2831.88	FeII		lwr14135.dat flux: 1.05e-13 λ obs: 2828.93 rv: -313.15 $\Delta \lambda$ abs: -2.96 $\Delta \lambda$ rel: 0.07			
2829.83	2833.09	FeII					
2834.39	2837.73	FeII					
2835.67	2838.22	FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2836.50	2839.51	FeII					
2837.06	2839.80	FeII					
2838.05	2839.80	FeII					
2838.61	--	--					
2839.42	--	--					
2840.31	2843.98	FeI					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2840.31	2843.98		FeI					
2841.34	2843.98		FeI					
2841.81	2843.98		FeI	lwp12304.dat flux: 1.54e-13 λ obs: 2841.81 rv: -228.79 $\Delta \lambda$ abs: -2.17 $\Delta \lambda$ rel: 0.00				
2842.69	2845.43		FeII					
2843.59	2845.60		FeII					
2845.93	2848.32		FeII					
2846.75	--		--					
2848.57	2851.72		FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2849.98	2852.12	MgI					
2853.80	2856.76	CrII					
2854.98	2857.40	CrII					
2855.74	2858.63	FeII				lwp20353.dat flux: 1.19e-13 λ obs: 2855.74 rv: -303.28 $\Delta \lambda$ abs: -2.89 $\Delta \lambda$ rel: 0.00	
2856.89	2858.65	CrII					
2859.72	--	--					
2863.07	--	--					
2864.99	2867.09	CrII					
2866.15	2868.87	FeII					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2867.53	2870.43		CrII					
2869.58	2872.26		FeII					
2870.02	2872.26		FeII					
2873.43	2875.99		CrII					
2874.43	--		--					
2875.06	--		--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2875.06	--	--	--					
2875.97	--	--	--	lwp12304.dat flux: 5.45e-14 λ obs: 2875.77 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.21				
2876.39	--	--	--					
2876.86	2880.76		FeII					
2877.31	2880.76		FeII					
2877.76	2880.76		FeII					
2878.49	2880.86		CrII					
2879.23	2882.19		FeII					

LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
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2879.70	2882.19	FeII					
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2880.32	2882.19	FeII	lwp12304.dat flux: 9.45e-14 λ obs: 2880.65 rv: -160.30 $\Delta \lambda$ abs: -1.54 $\Delta \lambda$ rel: 0.33	lwp20353.dat flux: 6.73e-14 λ obs: 2880.27 rv: -199.84 $\Delta \lambda$ abs: -1.92 $\Delta \lambda$ rel: -0.05
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2880.81	2884.78	FeII	lwp12304.dat flux: 9.45e-14 λ obs: 2880.65 rv: -429.41 $\Delta \lambda$ abs: -4.13 $\Delta \lambda$ rel: -0.28 lwp12304.dat flux: 3.00e-14 λ obs: 2881.19 rv: -372.81 $\Delta \lambda$ abs: -3.58 $\Delta \lambda$ rel: 0.26	
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LINE	λ RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2880.81	2884.78	FeII					
2882.64	2884.78	FeII					
2883.67	--	--				lwp20353.dat flux: 1.22e-13 λ obs: 2883.69 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.02	
2884.32	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2884.85	--	--	--	--	--	--	--	--
2885.90	2889.69	FeII					lwp20353.dat flux: 1.19e-13 λ obs: 2885.90 rv: -392.97 $\Delta \lambda$ abs: -3.79 $\Delta \lambda$ rel: 0.00	
2886.49	2889.69	FeII						
2887.14	2889.69	FeII						
2887.60	--	--		lwp12304.dat flux: 3.92e-14 λ obs: 2887.60 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00			lwp20353.dat flux: 7.06e-14 λ obs: 2887.86 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.26	
2888.44	--	--						
2889.12	2892.83	FeII		lwp12304.dat flux: 7.24e-14 λ obs: 2888.87 rv: -410.14 $\Delta \lambda$ abs: -3.95 $\Delta \lambda$ rel: -0.12				
2891.45	--	--						

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2892.65	--	--	--					
2893.44	--	--	--		lwr14135.dat flux: 9.54e-14 λ obs: 2893.77 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.59			
2895.01	--	--	--					
2897.95	--	--	--					
2899.24	--	--	--					
2900.00	--	--	--					
2900.71	--	--	--		lwr14135.dat flux: 2.75e-13 λ obs: 2900.49 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.06			

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2903.37	--	--	--					
2904.78	2907.86		FeII					
2905.51	2907.86		FeII		lwr14135.dat flux: 6.18e-13 λ obs: 2905.51 rv: -241.63 $\Delta \lambda$ abs: -2.34 $\Delta \lambda$ rel: 0.00			
2906.34	2909.54		FeII					
2907.18	2909.54		FeII					
2910.31	--	--	--					
2911.39	--	--	--					
2912.21	2916.15		FeII					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2913.09	2916.15		FeII					
2913.50	2916.15		FeII					
2914.64	2917.47		FeII					
2915.34	2917.47		FeII					
2916.34	--		--					
2916.83	--		--					
2917.44	--		--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2917.44	--	--	--					
2917.95	--	--	--	lwp12304.dat flux: 4.81e-14 λ obs: 2918.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.40				
2918.62	--	--	--	lwp12304.dat flux: 4.81e-14 λ obs: 2918.34 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.60 lwp12304.dat flux: 3.97e-14 λ obs: 2918.84 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.10				
2919.07	--	--	--	lwp12304.dat flux: 3.97e-14 λ obs: 2918.84 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.10 lwp12304.dat flux: 4.70e-14 λ obs: 2919.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.27				
2919.48	--	--	--	lwp12304.dat flux: 4.70e-14 λ obs: 2919.21 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.27				

λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
46	--	--					
47	--	--					
51	--	--					
07	--	--					
83	2926.58	FeII					
97	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2929.50	--	--	--					

2931.41	--	--	--					
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LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2933.35	--	--	--					
2935.05	--	--	--					
2938.71	--	--	--					
2939.23	--	--	--					
2941.65	2945.26		FeII					
2942.42	2945.26		FeII					
2943.12	2945.26		FeII					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2943.78	--	--						
2944.59	--	--						
2945.22	--	--						
2945.93	--	--		lwp12304.dat flux: 1.06e-13 λ obs: 2946.26 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.60				
2947.22	--	--						
2947.80	--	--						

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
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2948.50	--	--						
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2949.55	--	--						
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2950.29	2953.77		FeII					
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2950.86	2953.77		FeII					
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LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2951.48	2953.77		FeII					
2952.20	--	--						
2953.67	--	--						
2954.27	--	--						
2955.32	--	--						
2956.66	--	--						
2957.22	--	--						

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2957.74	2961.27		FeII					
2960.13	--		--					
2964.05	--		--					
2965.07	--		--					
2967.64	2970.51		FeII					
2968.24	2970.51		FeII					
2969.23	--		--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2971.15	--	--						
2972.31	--	--					lwp20353.dat flux: 1.69e-13 λ obs: 2972.31 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.00	
2973.75	--	--						
2974.51	--	--					lwp20353.dat flux: 1.38e-13 λ obs: 2974.55 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: 0.04	
2975.42	2979.35		FeII					
2976.13	--	--						
2977.64	2979.35		FeII					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2978.87	--	--	--					
2979.91	--	--	--					
2980.39	--	--	--					
2980.88	--	--	--					
2981.73	--	--	--					
2982.35	--	--	--					
2983.21	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2983.21	--	--	--					
2983.97	--	--	--					
2985.32	--	--	--					
2985.88	--	--	--					
2986.49	--	--	--					
2987.24	--	--	--					
2987.93	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2988.63	--	--						
2989.21	--	--						
2989.71	--	--						
2990.63	--	--						
2991.81	--	--						
2992.41	--	--						

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
2993.83	--	--	--					
2994.48	--	--	--					
2996.55	--	--	--					
2997.48	--	--	--					
2998.39	--	--	--					
2999.25	--	--	--					
2999.94	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
3002.62	--	--	--					
3005.08	--	--	--					
3006.28	--	--	--					
3011.03	--	--	--					
3017.39	--	--	--					
3018.45	--	--	--					
3020.81	--	--	--					
3021.96	--	--	--					

LINE	λ	RST	ID	PHASE 0.5-0.6	PHASE 0.6-0.7	PHASE 0.7-0.8	PHASE 0.8-0.9	PHASE 0.9-1.0
3023.15	--	--	--					
3025.29	--	--	--					
3026.06	--	--	--			lwr14135.dat flux: 2.92e-13 λ obs: 3025.91 rv: 0.00 $\Delta \lambda$ abs: 0.00 $\Delta \lambda$ rel: -0.15		
3027.54	--	--	--					
3028.05	--	--	--					
3029.42	--	--	--					
3030.09	--	--	--					

